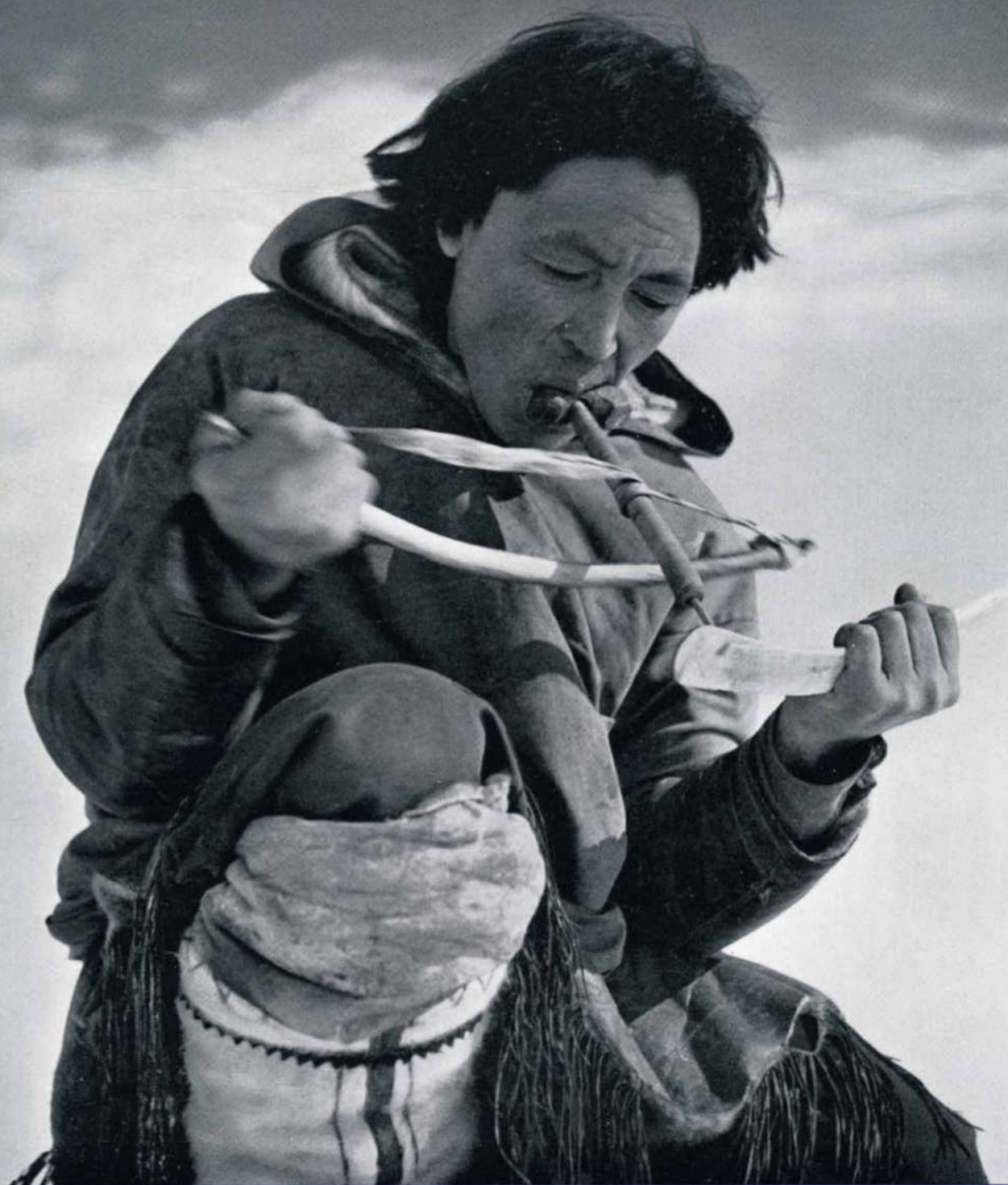


The Beaver

A MAGAZINE OF THE NORTH



PUBLISHED QUARTERLY BY

Hudson's Bay Company.

OUTFIT 277

SEPT. 1946

INCORPORATED 27TH MAY 1870.

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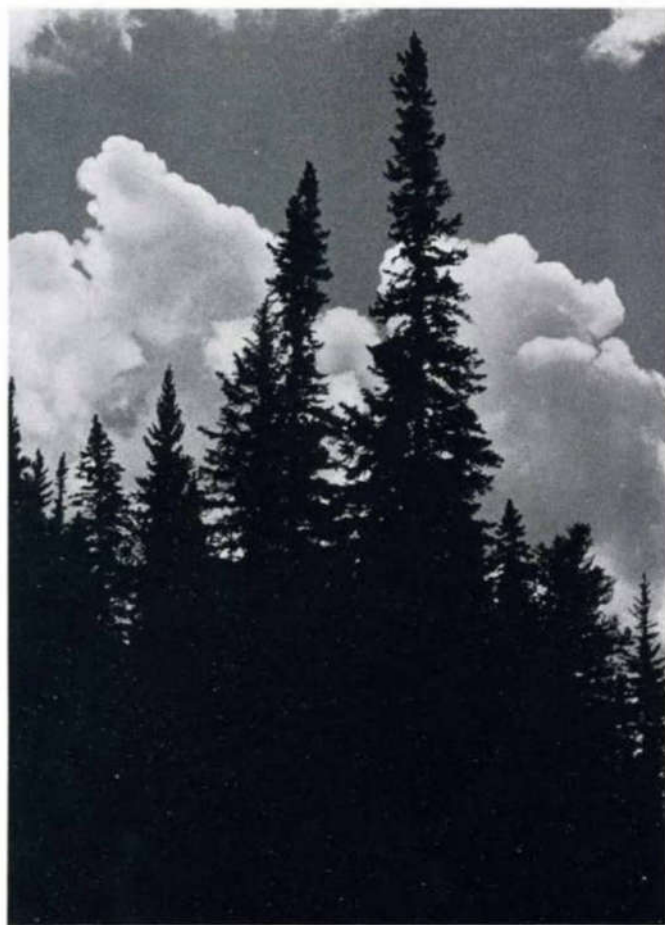
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Spruce Pinnacles

Peter Randall

ONE DOLLAR A YEAR

THE BEAVER is published quarterly by the Governor and Company of Adventurers of England trading into Hudson's Bay, commonly known as the Hudson's Bay Company. It is edited at Hudson's Bay House, Winnipeg, at the office of the Canadian Committee. Yearly subscription, one dollar; single copies, twenty-five cents. THE BEAVER is entered at the second class postal rate. Its editorial interests include the whole field of travel, exploration and trade in the Canadian North as well as the current activities and historical background of the Hudson's Bay Company, in all its departments throughout Canada. THE BEAVER assumes no liability for unsolicited manuscripts or photographs. Contributions are however solicited, and the utmost care will be taken of all material received. Correspondence on points of historic interest is encouraged. The entire content of THE BEAVER is protected by copyright, but reproduction rights will be given freely upon application. Address: THE BEAVER, Hudson's Bay House, Winnipeg.

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The CURSE of NEOVITCHEAK

Story and Pictures
by L. A. Learmonth

IF there is any place in the far north that is haunted by ghosts it is certainly King William Land. On that island, or in its vicinity, the whole of the Franklin expedition was lost a century ago. Old Eskimos relate more than one sad story of how whole groups of their people have perished from starvation in its vicinity, the last one in 1922, just before the HBC established its trading post at Gjoa Haven. Harold Luca, HB apprentice, perished there in a drift storm. The HB interpreter "Mike," of Siberia and Alaska, committed suicide there. And incidentally, the two men mainly concerned in the establishment of the trading post, Paddy Gibson and Pete Norberg, both came to violent and untimely ends.

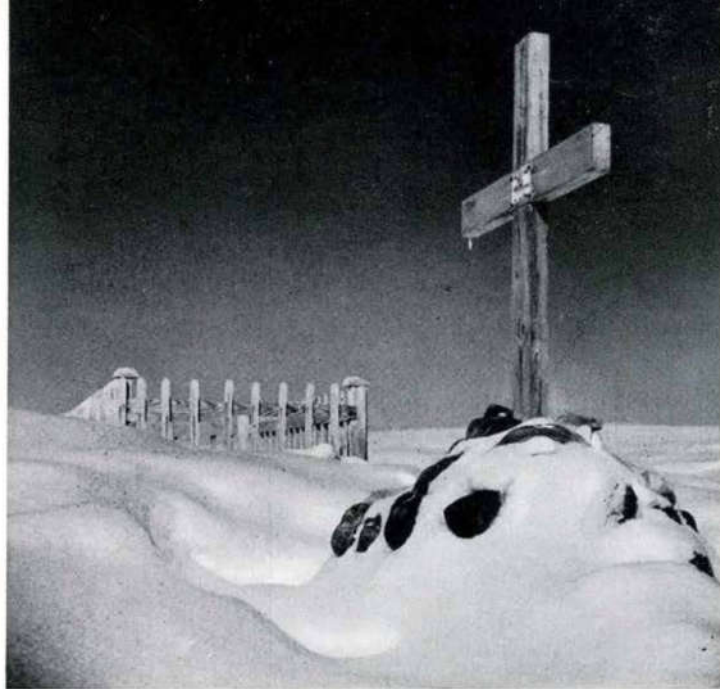
Now, Agloka, an aging Eskimo, had lived all his life in that often (though not always) niggardly and bitter country. One day while scouring the beach on the south side of Simpson Strait, and not far from Starvation Cove where so many of Franklin's men had perished, he came upon a large piece of much-weathered spar, which had drifted in from some shipwreck of long ago, possibly from Franklin's *Erebus* or *Terror*.

Such a windfall as that had never before been Agloka's happy lot, and for a moment he could hardly believe his eyes. Holding a hand to his brow, he related afterwards, he broke into an excited sweat. Why, here was the material with which to make himself a fine new sled like some of his more fortunate brothers had been able to buy with foxes, but such as he had never possessed!

After a great deal of work, a brand new sled was made, which for a time was the pride of Agloka's heart. But, alas, not long afterwards he sickened, and finally died. During his last days, however, when he knew death was not very far away, he particularly emphasized to his wife and family, and to his life-long crony and hunting partner, old Neovitchek, that the sled had to go with him. So in due course it was placed upon his grave together with his hunting equipment. There it remained, until one day Neovitchek who, like Agloka, had never possessed much of this world's goods, fell to temptation, broke faith with his old friend, and took the sled from the grave.

Not long afterwards, Neovitchek's and two other family groups went inland from Adelaide Peninsula on a caribou hunting expedition. But ill-fortune pursued them, and they were forced to return to the coast near Starvation Cove to eke out the barest existence at tomcod fishing holes. What little there had been left of their summer and fall seal, salmon, and white fish caches had been in the meantime consumed by bears and foxes.

After a little of this miserable existence, Neovitchek, falling sick, became further depressed by the thought that it was only his own perfidy that had brought want and sickness upon him and his family



This cross at Gjoa Haven marks the mortal remains of seven of Franklin's men. Beyond is the grave of Harold Luca, Hudson's Bay apprentice.

and friends, and that Agloka's spirit had put a curse on him. So he put the sled back on the grave and, along with the other people, moved over to the vicinity of Mount Mathieson near to the west corner of Schwatka Bay, to try hunting at seal breathing holes and to change their luck.

But, as his sickness grew steadily worse and seals proved scarce, and bad luck continued to dog their footsteps, Neovitchek felt his life was forfeit, and that he might as well take it himself, thus the sooner freeing the others from the curse. So it was he instructed his wife and family to build themselves a new igloo and move into it with their few belongings, then to prepare and fix a hangman's noose of seal line to the roof of the old one.

This was duly done, but as the old man was by then too weak to get to the noose unassisted, he further instructed members of his family to help him get his head through the loop—and so he died.

After burying him on a small island at the east corner of Schwatka Bay, all the people, as is their custom on such occasions, moved away from the now doubly cursed spot.

At this time I happened to be in charge of the Company's King William Land post, and had just heard of the suicide when Sgt. (now Inspector) Larsen of the R.C.M. Police arrived on patrol from the *St. Roch*, which was wintering at Cambridge Bay and of course, I duly reported the matter to him.

No doubt all details regarding this case are to be found in the R.C.M. Police blue books in Ottawa. But anyway, as in duty bound, Larsen had to go to the people concerned and investigate the whole matter, during the course of which he had to commit what amounted to sacrilege in the eyes of the Netchilingmiuts. He disturbed Neovitchek in his grave, bringing down on himself, the Eskimos believe, the suicide's and the double curse.

The rest of the story concerns Larsen in the course of his police duties in the eastern end of the Western Arctic, and I'll tell it, in part, as nearly as I can as seen through the eyes of that group of Netchilingmiuts



Three Eskimos who belonged to Neovitchek's family group. The man is his brother.



who knew of Agloka's death, of the stealing of the sled, and of how it all led to Larsen and the double curse Neovitchek put on him.

Larsen got back to the Company's post at Gjoa Haven all right after completing his investigations. But he had barely got ready to set off on the return journey to Cambridge Bay, nearly three hundred miles away, when old Neovitchek sent along his first reminder in the form of a tremendous fall of black snow*. There was no wind, and it did not blow for several days afterwards, so that the snow lay soft and deep. But though the travelling conditions were so poor, Larsen

*This is not an uncommon occurrence around King William Land, though the snow is not really black, merely a rather drab colour. On a test, using a large galvanised washtub filled with such snow, which was reduced to water and finally boiled dry, we were left with about a dessertspoonful of fine dust, which the meteorologists at Toronto afterwards told me probably came from the Dust Bowl in the States—L. A. L.

felt obliged to continue his patrol. I can see him yet as he left the post, plugging along without snowshoes and his poor dogs half out of sight in the snow, struggling behind him dragging the heavily loaded sled after them. Then, before night fell, along came a rip-roaring gale from out of the nor-west, and right in Larsen's teeth, which lasted for two days and nights. After that there was no soft snow.

A year later, Paddy Gibson was at King William Land post and I was elsewhere, when along came Larsen again on patrol, during the course of which he had to pass Neovitchek's grave on the way to visit a native camp in the vicinity of Matty Island, off the nor-east coast of King William Land. All went well till he got a little way past the grave, when the old man sent along reminder number two that the curse was still effective, and for Larsen to keep away. This time nearly all Larsen's dogs developed distemper or some other disease, and most of them died. Goodness knows how he ever got back to the *St. Roch* nearly four hundred miles away at Cambridge Bay.

Time passed. In 1941, Larsen was due to attempt the Northwest Passage from west to east with the *St. Roch* under orders from R.C.M. Police headquarters at Ottawa. So he set sail from Walker Bay on the nor-west corner of Victoria Island where the ship had been wintering. But he had got only as far as Pootoolik (Nordenskold Island) in the Queen Maud Sea, when the curse came out to meet him, and this time the *St. Roch* and all her crew were included. Again a bitter cold gale came out of the nor-west to lash to fury freezing seas which smashed boats on deck and washed deck cargo overboard, including dogs and sleds, finally leaving the *St. Roch* like a ship carved from an iceberg. And to wind up, the sea itself commenced to freeze over.

Eventually, after many trials and struggles, Larsen and the *St. Roch* got as far as Pasley Bay, which is on the east coast of Boothia and in the close vicinity of the Magnetic Pole. Here, owing to the presence of very heavy old ice ahead, the *St. Roch* was forced to winter; and there she was stuck for nearly a year.

While wintering at Pasley Bay, Larsen had occasion to send Constable "Frenchy" Chartrand on patrol to King William Land post, where once again I happened to be stationed. Frenchy remained with me a couple of weeks or so while looking into various matters concerning the welfare of the Netchilingmiuts. But he got little enough thanks for his efforts, because again Neovitcheak showed his disapproval of police investigators, and "Frenchy" died, to be the only white man ever actually buried at the Magnetic Pole.

Later on, during the same winter, and while on a patrol of some twelve hundred miles which circumnavigated the whole of the magnetic polar area, Larsen and Constable (now Corporal) Hunt had occasion to remain with me at King William Land for some considerable time, waiting for mail from outside which was due to arrive with Paddy Gibson, expected along on an inspection trip. But they waited in vain. Neovitcheak had again been at work, and all Larsen's and Hunt's mail and the rest of the *St. Roch* and Western Arctic mail had been destroyed in the plane, with Paddy on board, which fell flaming from the sky between Eldorado and Coppermine.

No wonder the Netchilingmiuts believe that old Neovitcheak's curse was well and truly laid. And today, despite the success that has crowned Inspector Larsen's voyages in recent years, they believe that it is still effective.



Above: The cairn erected in memory of Paddy Gibson at Franklin Strait. Below: After waiting in vain for Paddy Gibson, Larsen (left) and Hunt harness their dogs before setting out from King William Land post.





Not a movie set, but a street scene in Dawson, July 1899.

Larss & Duclos from C. G. K. Nourse.

THE KLONDIKE GOLD RUSH

by T. A. Rickard

THE Klondike gold rush was not a big one as compared with the stampedes to the gold diggings in California and Australia, but it had features of peculiar interest, due largely to the geographic position of the diggings near the Arctic Circle.

This northern land had been prospected and mined for gold in a small way long before the days of the rush. More than a century earlier the occurrence of gold had been known to the Russians, but they discouraged any search for the precious metal for fear that it might conflict with their lucrative fur trade. The search for peltry also brought the far-ranging trappers of the Hudson's Bay Company into the region. In 1848 Robert Campbell established an outpost at Fort Selkirk, at the junction of the Pelly and Lewes rivers, two main tributaries of the Yukon. The fort, or stockade, was burned in 1852 by Indians of the Chilkat tribe from southeastern Alaska. These truculent aborigines controlled the trade with the interior through the Lynn Canal and exacted tribute from any incoming trapper or miner. They checked intrusion until in 1878 a party of nineteen resolute Americans led by Edmund Bean, and protected by a small American gunboat from Sitka, forced their way ashore and compelled the Chilkats to make an agreement allowing

prospectors to proceed unmolested over the Dyea Pass into the hinterland.

The first gold diggings in the Yukon valley were started on the Stewart River in 1885. Soon afterward richer gravel was found at Forty Mile, which took its name from the fact that it was supposed to be that distance down the river from Fort Reliance, another Hudson's Bay outpost established in 1873 on the Yukon, only six miles below the later site of Dawson, the city created by the Klondike rush. Several other creeks were prospected with success during the ensuing decade. A little gold had been gathered also along streams tributary to the Thron Duik, an Indian name meaning plenty of fish, which later was changed by the prospectors to Klondike. The vast wilderness had been explored by a few intrepid gold-seekers, but their findings had been insignificant and the world outside had ignored their doings.

Then suddenly, and unexpectedly, came the exciting news that a great goldfield, a veritable Eldorado, had been discovered in the Far North. A bugle-call to

adventure was heard across the world. The discovery that started the stampede was made by Carmack in 1896. George Washington Carmack, as his name suggests, was an American; he was a Californian by birth and had spent thirteen years in Alaska before he went up the Yukon into Canadian territory. In the early part of July, 1896, Carmack came to the place, now the site of Dawson, where the Klondike River enters the Yukon. With him were two Tagish Indians, brothers, known as Skookum Jim and Tagish Charlie. He had been with them for many years and together they had done some prospecting. They were now engaged in fishing. A month later Carmack decided to ascend the Klondike and explore the river-bed for gold. He was attracted by the schist debris that he saw at the mouth of the river, because it reminded him of similar conditions on Miller and Glacier creeks, down the Yukon, in Alaska, where profitable diggings had been developed.

Shortly before Carmack started from the fishing camp, a man paddled to the shore in a canoe and greeted him. It was Robert Henderson, whom he knew

well. This Nova Scotian prospector told him that he was going to a creek on the other side of the Dome, a prominent hill that separated the Klondike and Indian rivers, where he had found some fairly good ground. When Carmack asked if there was any chance to locate a claim, Henderson replied that there was for him, but not for any "damned Siwash," looking askance at the Indians. They heard, understood, and deeply resented the insult.

Next day Carmack and his Indian comrades poled their boat two miles up the Klondike River. Then they disembarked and shouldered their packs, proceeding on foot along the bank of the river for about a mile until they came to a creek that showed quartz and schist. This was known then as Rabbit Creek. Soon they reached a place where the stream made a bend, and below it was a bar of gravel. It seemed a likely spot for gold. Dropping his load, Carmack took a pan to the water's edge and tested the fine gravel. It yielded some nice "colours," or particles of gold. The three men went farther up the creek and detected gold

Out of a cluster of tents and shacks a long line of humanity struggles upward to the summit of White Pass. *Curtis.*



in several places. Then they camped for the night. Next morning they continued on their way up-stream, testing the gravel from time to time. They passed the confluence of Eldorado Creek and turned westward along the ridge. Then they went up to the Dome, from which they could see the smoke from Henderson's camp on Gold Bottom, a branch of Hunker Creek. They went down thither, and Henderson greeted Carmack in a friendly fashion. Four men were at work. Carmack asked permission to pan the gravel, and noted that it was comparatively poor, whereupon he showed Henderson's associates the gold he had obtained on Rabbit Creek, and invited them to return with him to locate claims. They "did not seem to be interested," Carmack says. His inference was that Henderson declined to go because of his prejudice against the Indians. "So his obstinacy," adds Carmack, "lost him a fortune."*

The Carmack party did not linger at Henderson's camp; they returned to Rabbit Creek and resumed their prospecting. At length they came to a place where a long strip of bedrock, ten or twelve feet wide, lay exposed. It looked promising. Throwing his pack off his tired shoulders, Carmack walked to the rim, and there, on the surface, he saw "a nugget about the size of a dime." He put it between his teeth and bit it. This is a good test for gold, which is malleable. Then he called for a pick and shovel. With these tools he turned over some of the loose bedrock, and saw more gold in the crevices. "I could see the raw gold laying thick between the flaky slabs, like cheese sandwiches" is Carmack's way of describing it. A further test by panning was rewarded by a showing of coarse gold.

The three men thereupon performed a dance around the pan. They were gloriously happy. "After resting a few minutes," Carmack says, "I washed a few more pans and filled an empty shot-gun cartridge shell full of coarse gold, after which we crossed the creek and made camp on the flat."

In the morning Carmack, with his axe, blazed a spruce tree, on which he wrote his location notice:

"To Whom it May Concern:

"I do this day, locate and claim, by right of discovery, five hundred feet, running up stream from this notice. Located this 17th day of August, 1896.

G. W. Carmack."

It will be noted that he took his claim up-stream from the place of discovery, because usually the gold is coarser in that direction. The three men then, with a 50-foot tape, measured the length of the claim, together with 500 feet more for Jim up-stream. Going back to the discovery point, they located another similar claim down-stream for Carmack and beyond it one for Charlie. Next Carmack tore a piece of bark from a birch tree and wrote upon it the words: "I name this creek Bonanza. George Carmack." This he fastened to the discovery stake, and thus Rabbit Creek was renamed. Then the three fortunate prospectors shouldered their packs and returned to their camp at the mouth of the Klondike, eleven miles distant. Next day Carmack and Charlie went in a boat down the Yukon to register their claims at Forty Mile, where Captain A. Constantine, in command of nineteen men of the North-West Mounted Police, was acting as mining recorder.

There has been much controversy concerning the first discovery of gold in the Klondike district. William

*Quotations from Carmack are taken from a pamphlet he and his wife published in 1933.

Ogilvie, commissioner for the Yukon, and other Canadians that have written on the subject, show some prejudice against Carmack, largely because he was an American, whereas his rival for the honour, Robert Henderson, was a Canadian. Ogilvie suggests that Carmack was disreputable and untruthful. This is rendered improbable by the fact that he was a member of the Masonic order at Seattle. He was a man of fairly good education, as his pamphlet shows. When he gained his fortune suddenly, he was only 36 years of age. Two years later he married an attractive and intelligent American woman, Marguerite Safteg, with whom he lived happily until his death in 1922, at the age of 62. Money did not spoil him, which is a proof of character; he and his wife travelled widely and made the most of their good luck in a sensible and temperate manner.

Ogilvie, in his *Early Days on the Yukon* (1913), says that Carmack cannot be credited with the discovery of the Klondike gold because he could not have reached Forty Mile until August 21, and meanwhile others had staked claims on Bonanza Creek without his knowledge. Carmack and Charlie went down the river in a boat, not a raft, as Ogilvie states. Before starting, Carmack told two men about his discovery; and, when going down the river, he met four others. To them also he gave the good news. It was these men that located claims along Bonanza Creek on August 19 and 20.

Bob Henderson was liked by his fellows, and sympathy went to him when he made his claim as the discoverer. The Canadian Government was favourable to him, and awarded him a pension of \$200 per month. Nevertheless, it is well known that gold had been found in the tributary streams of the Yukon, and even in the Klondike valley, before either Carmack or Henderson came thither. The discovery made by Henderson on Gold Bottom was of no consequence either then or thereafter. The point is that the discovery that started the stampede was the one made by Carmack, because it was rich enough to attract those then in the vicinity and later to cause an excited migration from farther afield.

News concerning the gold discovery on the edge of the Arctic did not reach the outside world for many months. That is a remarkable fact. The first announcement appeared in the form of gold-laden diggers disembarking from a ship at San Francisco. On July 14, 1897, the little steamer *Excelsior* brought half a million in gold-dust and a number of miners, who told the tale of a fabulously rich goldfield in the Far North. Three days later the *Portland* reached Seattle with a richer freight in gold and diggers. On board her was more than a million dollars worth of gold, the winnings of sixty-eight lucky men. At once the newspapers of the Pacific Coast broke into hysterical descriptions; they magnified the few facts available into sensational tales that spread across the continent like a prairie fire. An irresponsible press was abetted eagerly by the shipping companies and the merchants that saw their chance for a feverish trade during the stampede that was impending. The Klondike region was almost unknown to the general public; in London it was supposed to be in British Columbia; in New York it was supposed to be in Alaska.

The hiatus of eleven months between the discovery of the gold and the announcement of the news to the outside world is a remarkable feature of the Klondike rush. Some news of the event did leak out, but was



The railways issued pamphlets to inexperienced gold seekers. This one of 16 pages carried a wealth of data on the various routes. Above: The party led by Glen Campbell (foreground) son of C. F. Robert Campbell, sets out from Edmonton.

C. W. Mathers.



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EDMONTON

PROSPECTOR'S ROUTE

To the Great Gold Fields of the Northwest Territories—The Poor Man's Route to the New Klondykes—An Open Door.

A Visit to the Great Trade Centre and Outfitting Point in Alberta, Canada—The Explorations Which Demonstrate the Existence of Gold on Numerous Streams—Going to Edmonton by Rail and the Routes to Take From There—Gold Seekers Already There in Large Numbers Starting for the Winter Trip—Rich Strikes in Prospect—How to Outfit and Save Duties—The Gateway to the Coming Gold Mines.

(By permission of St. Paul Pioneer Press, Jan. 21, 1908.)
EDMONTON, ALBERTA, CANADA, January 21, 1908.
In the over one hundred years of its existence, important as it has been as a trade centre for the Canadian Northwest, the enterprising

city of Edmonton has never enjoyed such prominence and trade as has been thrust upon her during the past twelve months.

Edmonton is located on the Saskatchewan River 100 miles north of the main line of the Canadian Pacific Railway upon the Calgary and Edmonton Branch, of which it is the terminus. It is 2,204 miles from Montreal, 90 miles from Winnipeg, and 1260 from St. Paul and Minneapolis. It is reached from the Twin Cities via the SOO-PACIFIC and its connection with the Canadian Pacific. You can go from the Twin Cities to Edmonton with but one change of cars.

ESTABLISHED THE LAST CENTURY.

Over one hundred years ago Edmonton was established as a trading post and notwithstanding it has had railroad communication with the outside world for but seven years, it has maintained a commercial importance beyond that of any town of its size in North America, and greater than many towns ten times its size.

This is because it has been the gateway for the operations of hunters, trappers and Indian traders for one hundred years, and their natural market; because it is in the very heart of a most prolific agricultural and grazing district, and absolutely within the most extensive gold-bearing region on the face of the globe, a combination which it is

phlet told the story to the public, the gold-laden ships had reached the Pacific ports.

The miners on the ground could not form any estimate of the richness of the creeks on which they had found gold until the spring, for the simple reason that the extraction of the gold from the gravel was impracticable while the streams were frozen. The freeze-up came soon after the first discoveries had been made by Carmack and those that followed him. Their tests by panning proved the ground to be rich, but its extent could not be determined because no water was available. During the winter the diggers could only excavate holes by aid of wood fires and then accumulate the gravel, thus loosened, in dumps ready for washing when the thaw came, in the following May. Therefore no proper idea of the importance of the discoveries in the creeks could be formed until eight or nine months had passed. Thus the first conclusive information came with the successful diggers on the returning ships in July, 1897.

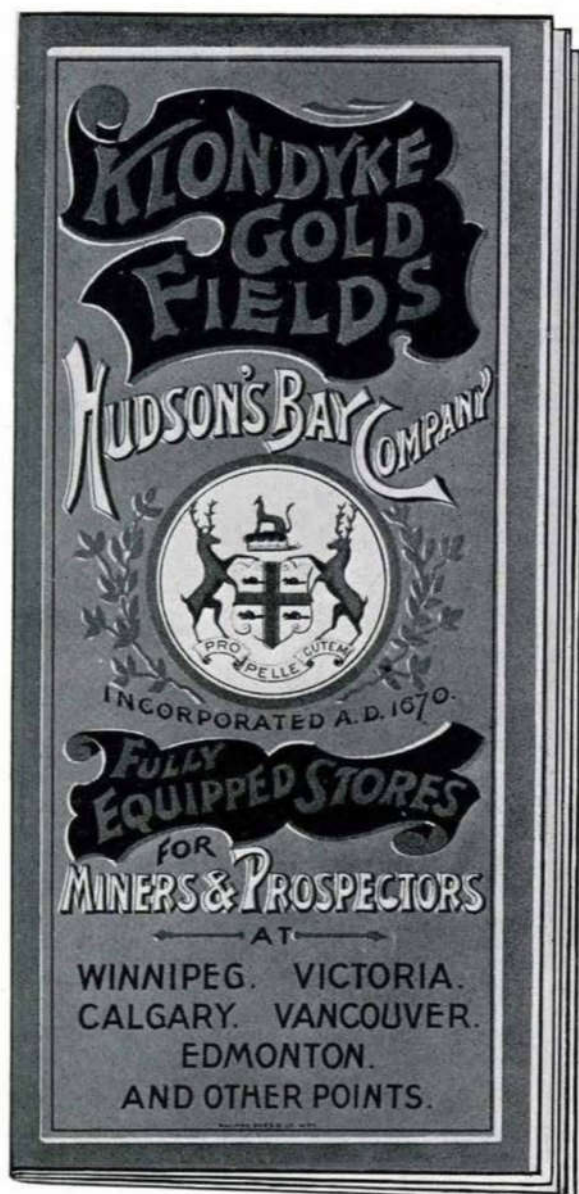
The arrival of the treasure-laden ships incited a tremendous stampede to the Klondike diggings. The rush was at its maximum when the snows of winter had fallen upon the intervening wilderness. Some of the adventurers went by water, from Seattle or San Francisco, to the mouth of the Yukon, at St. Michael, and thence by paddle-steamer up the river to Dawson. That was a comparatively slow and easy journey, even if it was marked by overcrowding and underfeeding. Other routes were suggested overland. Geographically an all-Canadian way of approach from Edmonton seemed attractive, making use of the Athabasca, Peace, Mackenzie, and Porcupine rivers. The distance was about 2,700 miles. The merchants of Edmonton issued a "Prospector's Guide," which misguided many adventurers. "Sixteen days to the Klondike" over a "back-door route" sounded alluring. Another allowed sixty days for the journey and called it "the poor man's route." Another way was from Ashcroft through British Columbia and up the Stikine River, making use of the old telegraph trail to the Yukon. The merchants of Vancouver recommended

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GREENBACKS AT A PREMIUM.

A returned miner tells this story: "Greenbacks, contrary to the general rule, are at a premium over gold in the Klondyke country. We have to pay a \$100 ounce for \$125 in paper money, but, of course, everyone who thinks of coming out, wants the paper money. I thought I would tell you all what I could get at a reasonable price, and also a few pounds of gold, which I have sold to the Bank of Montreal at \$150. It was Bonanza gold, the finest standard of all and I was rather disappointed in the price paid here."

overlooked. Late in November, 1896, a small party headed by Captain William Moore went from the diggings to the Alaskan coast at Juneau. They carried letters from William Ogilvie, then in charge of the boundary survey. He was stationed at Cudahy, a trading-post half a mile below Forty Mile. In January, 1897, Thomas O'Brien started for the outside and reached Juneau with more letters from Ogilvie to be forwarded to Ottawa. These letters reached Ottawa probably in March. His first reference to the discoveries appears under date of September 6, 1896. Three months later, on December 9, Ogilvie wrote: "Now it is certain that millions will be taken out of the district in the next few years." This information, let it be noted, was not made public until, in June, 1897, the Dominion Government issued a pamphlet entitled "Information respecting the Yukon District." It contained Ogilvie's letters. By the time this pam-



A folder in red and gold issued by the Company. Inside is a large map showing H B posts and routes to the gold-fields. A list of requirements for one miner for a year is also given, costing \$190 to \$220.

going by ship to Wrangel, on the Alaskan coast, and from there up the Stikine to Lake Teslin. The Hudson's Bay Company issued useful maps and suggestions for the miner's outfit. The Canadian Pacific Railway provided a folder describing seven routes, without recommending any one of them. Most of those that tried to reach the Klondike overland either failed to complete the journey or spent more than a year in their misguided efforts. But most of the men, in an urgent hurry to reach the diggings before all the gold had been gathered, went by way of the passes over the Coast Range and then down the upper Yukon. They travelled by steamer to the head of the Lynn Canal, which divides into two inlets, one to Skagway and the other to Dyea, two petty hamlets that soon grew into crowded camps. Each served as an entry to a pass—from Dyea to the Chilkoot and from Skagway to the White Pass. From Dyea the distance to Lake Bennett,

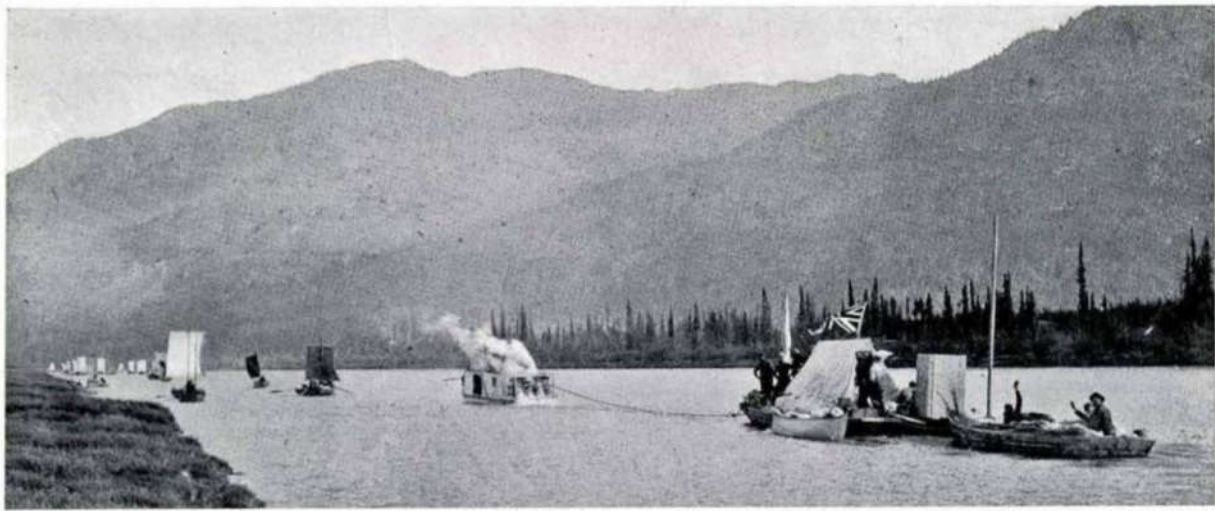
near the source of the Yukon, was thirty miles; from Skagway, forty-two miles. The latter route was preferred because it was less steep than the other. The summit is 2,886 feet above tide-water.

Both Dyea and Skagway became dens of iniquity in which gun-men of the American frontier type victimized and murdered many of the inexperienced gold-seekers. At Skagway a ruffian called Soapy Smith, the leader of a gang of one hundred and fifty desperadoes, dominated the town and did much as he pleased. The law was held in derision. On the other side of the passes, life and property were safe. The summit marked the boundary of Canada, and once within the Dominion the adventurers found themselves protected by the North-West Mounted Police. A detachment of the police was stationed there, to collect customs duties, and remained there despite the rigour of the winter and the impact of furious snowstorms. And when the swarm of gold-seekers reached Dawson they found the same police in control, ready to act with courage, intelligence, and kindness; for among their duties was the care of those disabled by illness or accident.

During the winter of 1897 no less than thirty-three thousand men and women went over the passes. Owing to the difficulty of transferring their equipment across the range after the snow had fallen, thousands of them were stalled at Dyea, Skagway, and White Pass City. These mushroom camps became badly congested. The conditions of living were wretched; poor food, dissipation, excitement, and inadequate clothing combined to decimate the motley throng. In April, 1898, sixty-three men were killed by a snowslide on the Chilkoot trail. Other snowslides took their toll of human life. During the winter forty-six died of spinal meningitis, caused by over-exertion and exposure. Many young men from decent homes were victimized: they found themselves in a "wide-open" town, with saloons, dance halls, and gambling dens in full swing; they went wrong easily and spent all their stake money. These never reached Eldorado; most of them crossed that far range from which no traveller returns.

The ascent of the passes and the descent on the other side was made arduous by the fact that the adventurer had to carry his equipment, the total weight of which averaged about one ton. The loads belonging to parties of two or three men required many trips up and down the pass. The first and last method of transport is human portage. It is the load, as well as the pace, that kills. Many men that had never carried more than a few pounds on a good road felt heavily burdened with eighty, sixty, or even fifty pounds when trudging on a trail that was rocky, boggy, or snow-covered. At first a few Indians were available as porters, at the rate of fifty cents per pound. Later, horses were employed, and the carcasses of three thousand of them were strewn along the trail, spoiling the mountain air with their stench.

The eager mob that climbed the passes during the first winter and spring of the rush afforded a pathetic spectacle. With a harness over his shoulder, carrying a pack or tugging a sled heavily loaded, with eyes bulging, sweating, swearing, the "musher" would advance a few miles and then deposit his load. While he returned for more, his partner stood on guard. Usually the Klondikers worked in parties of two or three, and even then it might be weeks before they had carried all their belongings over the summit. After a day of continuous toil, these men found shelter in a bare shack or in a flimsy tent. This was dangerous to health, although



The Canadian Bank of Commerce party (foreground) en route to Dawson, June 1898.

Courtesy C. G. K. Nourse.

it was not unusually cold during the winter of the first rush, the lowest temperature at tide-water being only five degrees below zero in February, of 1898. Nevertheless, the incoming *cheechako* suffered severely, while the seasoned "sourdough" returning from Dawson was musing at a temperature much lower,* sleeping in good tents, and travelling comfortably.

If the unholy pilgrimage to Dawson was marked by the horrors of privation and death, it was due mainly to the inexperience of the pilgrims. Among them were old men and immature boys; also women, both old and young. As a matter of fact, the ascent of either pass would constitute a pleasant excursion for a vigorous man accustomed to the mountains and unburdened by the supplies needed by the prospector on his way to diggings 570 miles distant. Most of the men, and women, that faced the ascent of the passes were unfamiliar with snow. People from the cities, unused to open-air life, unaccustomed to carrying loads, wholly ignorant of how to take care of themselves, in a frenzy to reach Eldorado, were sure to get into trouble on a rough trail crowded with others like themselves. In short, the stampede was composed largely of persons unfitted by physique and temperament for the hardships of the northern frontier; it was a mob mainly of inexperienced people, without a directing hand, without any organization. If properly organized under competent leaders, the whole of the feverish migration might have been effected with a fraction of the labour spent and the hardships endured.

After surmounting the Coast Range and arriving at the lakes—Bennett, Lindeman, and Tushai—at the head of the Yukon watershed, the adventurers had to procure boats of some kind for the transport of themselves and their equipment down five hundred miles of river. A few of them had brought sectional boats or canoes that could be put together without delay, but most of them had to construct some sort of craft. A large concourse was camped for a while in tents and shacks on the lake shores while the work was in progress. Usually two men were sent over the pass to cut timber and prepare lumber for boat-building. They had to go several miles up the valleys to find the trees, spruce and pine, and then float the logs down the

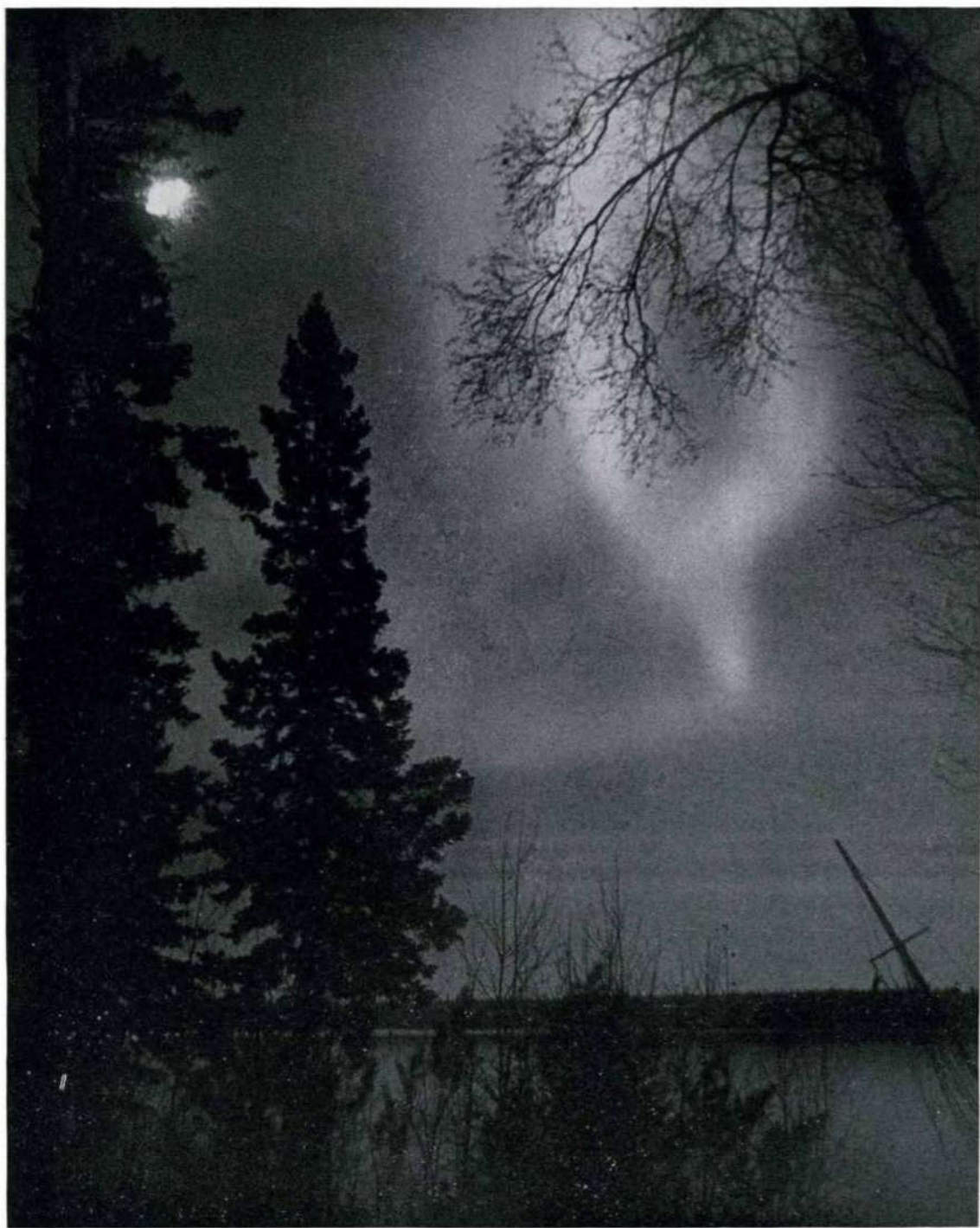
*On December 12, 1897, it was -52°F at Dawson.—Ed.

stream. A saw-pit was prepared, and with whip-saws they cut the planks, nine or ten inches wide. Later a sawmill became available at Lake Bennett, and boats were made under contract for prices ranging from \$250 to \$500. When the vessel was completed, the seams were caulked with oakum and pitch. Nevertheless as the lumber was green, the boats leaked like sieves at first, but the load was placed on the cross-ribs and thus was kept dry. Every start was greeted with salvos of revolver shots. A spritsail was hoisted if the wind was favourable. In the late summer of 1897 there was a race to get to Eldorado; it was a race also against the oncoming winter, which closes the Yukon and its tributaries for eight months in the year.

Dawson was a rip-roaring town. Gold was gathered abundantly and it was spent recklessly. Payments were made in gold dust, which was poured from the miner's poke, or leather bag, into the pan of a pair of scales upon the counter of the store or at the bar of a saloon. Usually the dust was valued at \$16 per ounce, that is, it was rated at four-fifths pure gold. The diggers were a bit careless in handling it, so that the boys who collected the soiled sawdust on the floor near the bar made more than pocket money.

The output of gold from the Yukon in 1897 was \$2,500,000; this rose to \$10,000,000 in 1898 and reached a maximum of \$22,275,000 in 1900. Up to the end of 1911 the total yield was \$140,000,000. After 1900 a decrease began, and continued, until in 1910 the output was only \$4,570,000.

The Klondike rush and its sequel of systematic mining operations are not to be measured merely in terms of dollars. The finding of gold in the North opened a fresh field to human industry; within two years big paddle-steamers were ploughing the waters of the Yukon, a railroad had been built over the Alaskan range from the coast into the interior, the telegraph had linked the Arctic frontier with the nerve centres of the world, and new communities had arisen in the very heart of the vast solitude. It was not long before agriculture was started in the wilderness, and children played where but lately the moose and caribou had roamed at will. Once more, the miner had established outposts of civilization in the waste places of the earth and opened a new domain to human endeavour.



"... and the firmament sheweth his handiwork." The moon
and the aurora over a northern lake.

T. Tadda

AURORA BOREALIS

by Bennie Bengtson

Photos by T. Tadda

IT had been a drab day in late October—sleet had fallen at intervals during the day but toward evening the sky cleared. Standing by a window late that night and looking out, I thought that the patches of soggy snow still on the ground seemed unusually distinct for there was no moon. Glancing upwards, I discovered the sky to the north all luminous with vivid, glowing, dancing waves of light. The otherwise dull day had ended with a brilliant aurora.

I ran outside to see it better. All the way from the northern horizon to the zenith great streamers, now a colourless white, now tinged with rose and green and yellow, moved back and forth across the sky. The colours changed quickly, and the movement of the light streamers was extremely swift and erratic. At times they resembled lace curtains blowing out of an open window. Then again I fancied I was gazing at the cascades in some turbulent rivers of the sky, flowing down towards the horizon and then back toward the zenith once more, the wild and foaming spray dashing high. Here and there they swept over the sky, sometimes a lovely shade of apple green predominating, then a pale rose, lavender, a deeper rose, or a pale yellow.

For about half an hour the grand show lasted, after which it faded away to return once more but not to its former brilliance. Then the aurora vanished and at midnight the sky was clear and starlit. Living in the middle northern latitudes, I have seen many auroras, but for variety and shade of colouration and for the swiftness of its motion, this one surpassed them all.

Auroras are for the most part colourless, or else yellowish white in colour, but there are occasionally displays in which all the colours of the rainbow can be seen. John Muir, in his book *Travels in Alaska*, writes of a vast purple aurora that he once saw, of the rainbow-coloured columns of another, and of a magnificent colourless one that he viewed from the beach near Muir Inlet in Alaska. This last spanned the sky from horizon to horizon in one immense, shimmering bow, like a giant bridge, and innumerable ringlets, pale gray in colour, moved rapidly along the under side of the bow going from east to west.

Many are the theories that have been evolved to explain this remarkable phenomenon of the sky. It is known, however, that auroral displays are most frequent during periods of great sun-spot activity. Hence it seems likely there is some connection between the two—that the electrical or magnetic disturbance causing the aurora has its source in the sun.

The accepted theory is that they are caused by tiny electrified particles violently projected from the sun. These move along the magnetic lines of force toward the magnetic poles of the Earth and produce the effect we know as auroral light.

The celebrated astronomer Halley believed they were due to magnetic vapour, and still another theory

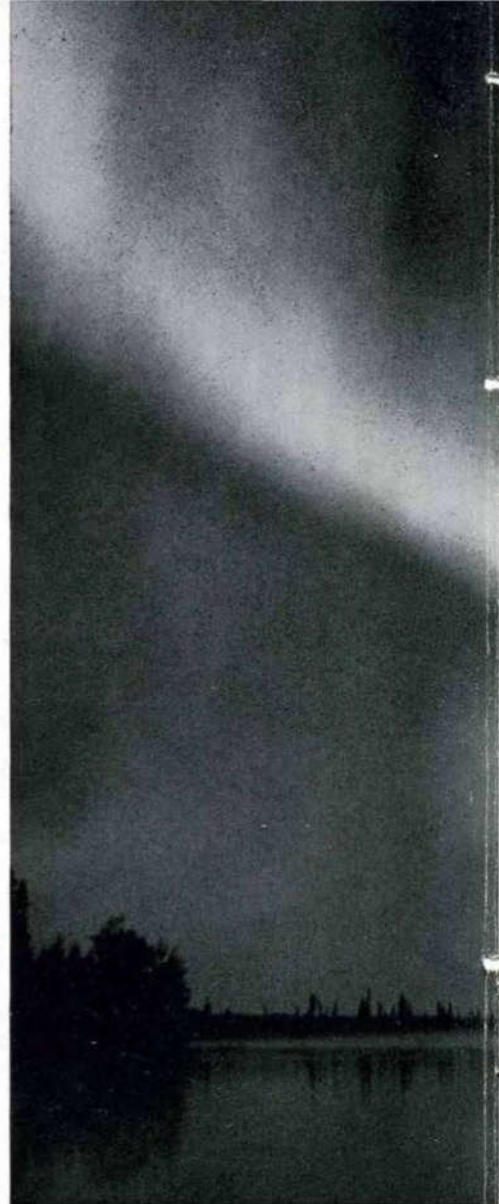
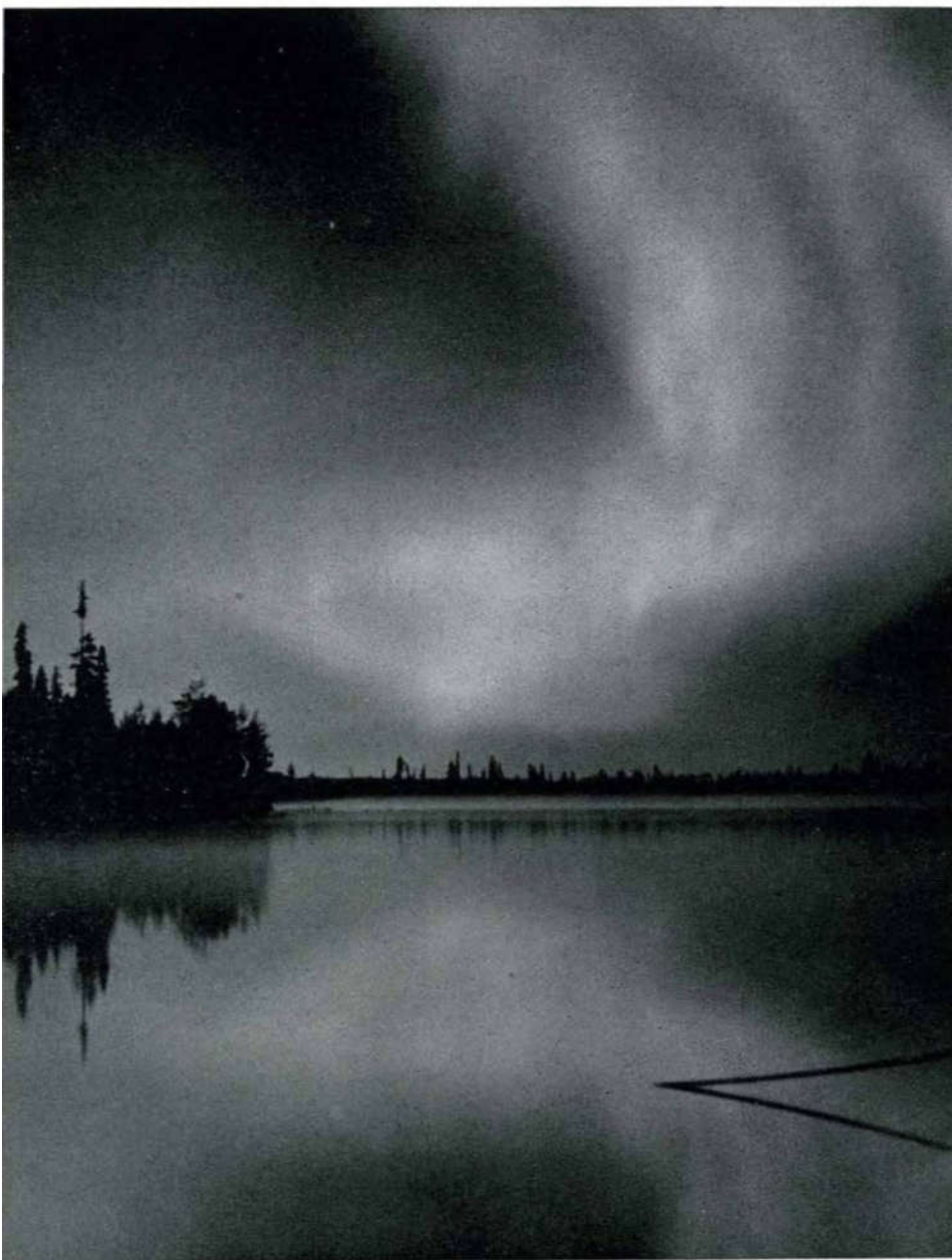
suggested two centuries ago is that these luminous streamers are composed of clouds of dust cast into the air by volcanic eruption and becoming incandescent on entering the atmosphere, as in the case of meteors. Study by the spectroscope has revealed that auroras are luminous in themselves, and are not due to the reflection or refraction of light as are rainbows or halos.

Those which we see in the middle northern latitudes are almost always in the northern sky, but as one goes farther north, into Greenland and Labrador, they are also to be seen in the south. Contrary to what has sometimes been said, they do not become more frequent as the geographical north pole is approached; for according to polar explorers auroras occur most often in the latitudes of Iceland, Labrador, southern Greenland, and on across northern Canada and Alaska. They may be seen during any season of the year but most often during the months of March and September and least often in June and December. Their period of greatest brilliancy takes place during the first half of the night, growing later as the latitude increases. Although the light seems to the observer to be very brilliant in the finest of the displays, it seldom exceeds the light of the moon during its first quarter.

There are several forms of the aurora, one being the exquisitely coloured, curtain-like type I have described above. The commonest form of all is the arch, usually colourless, though it may display various rainbow-like shades. This type shows less movement and changes its shape more slowly, remaining comparatively fixed. Rarest of all auroras is the corona type, seen almost always at or near the magnetic zenith, and having the appearance of numerous fan-like rays extending from a common nucleus of light.

Auroras occur at heights varying from forty to six hundred miles, the greatest number occurring at the lower heights. These have been accurately measured by specially designed cameras, pictures of the same aurora being taken simultaneously from several positions, fifty miles or more apart. The negatives are then compared, the background of the stars showing a shifting. The distance between the cameras being known, this gives one side of a triangle; two angles are secured, and so the other two sides and the distance to the aurora is figured.

In the northern hemisphere the term aurora borealis is used; in the southern, aurora australis. Boreas in Greek mythology being the god of the north wind, and Auster, the Latin name for the south wind. Aurora polaris or simply aurora, applies to both. The aurora borealis is usually referred to as northern lights in England and the United States, a term derived from the ancient name long used in Sweden, Norway, and Germany. In some regions they are called "marionettes," in others "the merry dancers." Sixteenth century authors referred to the aurora as "leaping goats"



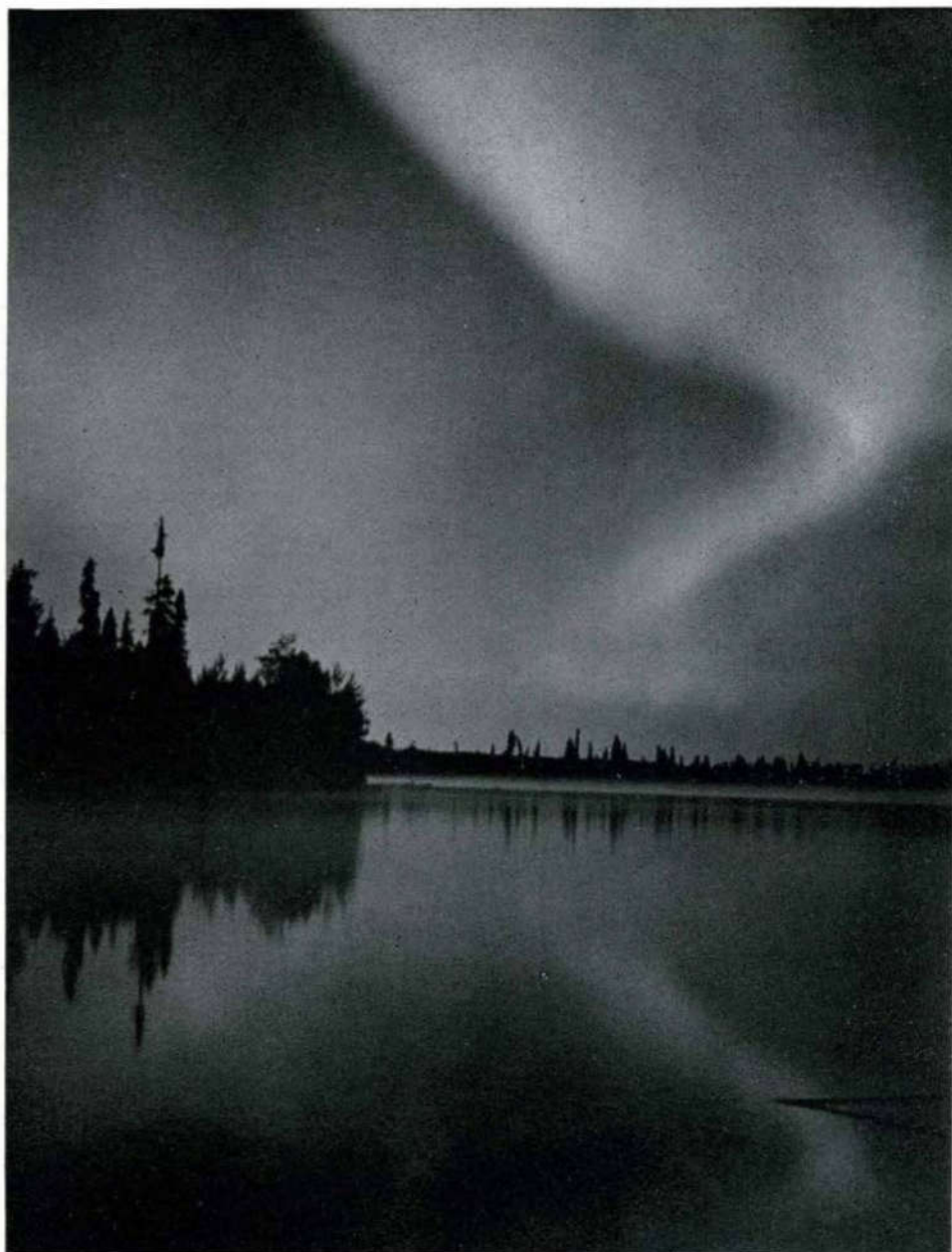
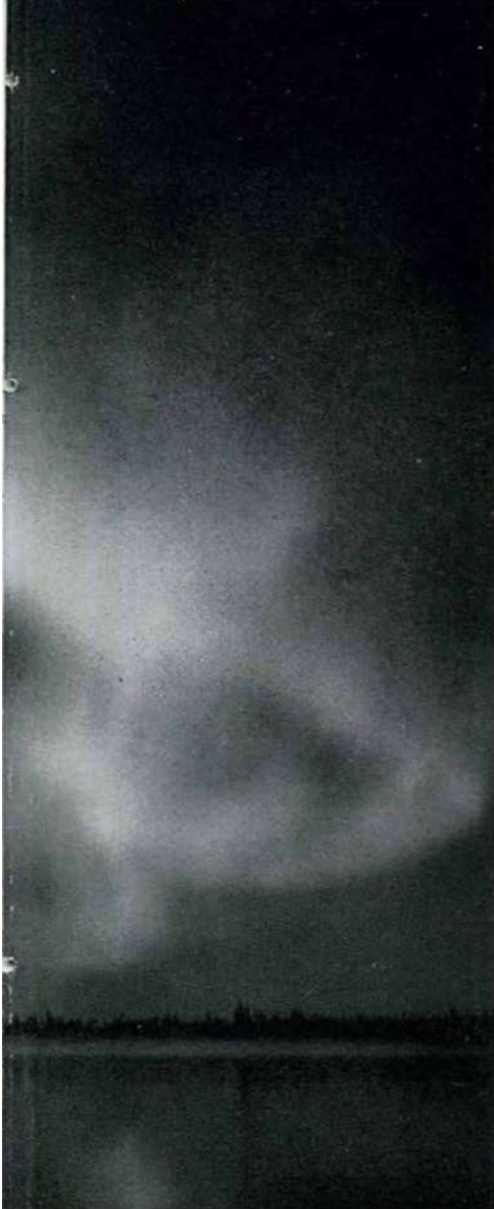
"The Merry Dancers"

and "flying fires." In ancient and medieval times many people looked with awe and terror upon the displays and occasionally pilgrimages were undertaken to appease the wrath of heaven as shown in these signs. It was believed that the northern lights were great armies warring in the skies and that heaven itself finally caught fire and burned.

Seneca writes about the aurora, giving a good description—likening it to a smoke suspended across the sky. Aristotle, too, gives a similar description, and Pliny, writing about several displays seen during

ancient times, hands down a less accurate but much more vivid and picturesque account.

Auroras are generally considered by observers as being noiseless, but at times as I have been gazing at a display I have been conscious of a very faint, just barely audible, rustling sound. Whether this has been due to the northern lights, to the drifting of dry loose snow during the winter, or to the whistling of the wind, I have never been quite able to decide. The Eskimos believe the aurora borealis makes a singing noise, and the Lapps liken this sound to the crackling in the joints of a herd of reindeer in the distance. The



*Photographs of the
Aurora Borealis taken
about 15 seconds apart.*

inhabitants in the region of the Hudson Bay as well as those of some other districts state that a peculiar sound like the rustling of silk can always be heard during an auroral display.*

Perhaps it is a good thing that we cannot tie a tag on an aurora, hang it in a museum, and explain just exactly what it is. There is always something fascinating about a mystery, and especially so fleeting and tenuous a spectacle as the northern lights—this wondrously beautiful thing flowing in living, moving colours across the canopy of the heavens. Some of Nature's

*It is now generally believed that the rustling sound accompanying some aurora is produced by an electrostatic discharge at ground level.

finest gifts to us, like halos, rainbows, and auroras, are also the most illusive and evanescent. As Robert Burns writes in "Tam O'Shanter":

"But pleasures are like poppies spread,
You seize the flow'r, its bloom is shed;
Or like the snow falls in the river,
A moment white—then melts forever;
Or like the borealis race,
That flit ere you can point their place;
Or like the rainbows lovely form
Evanishing amid the storm."

VIKING of the SKIES

by F. H. Ellis



G-CAEB at Remi Lake on the way to James Bay, August 1924. Left to right: B. McClatchey, Mr. Aurie, R. S. Granby.



The Vickers Viking sailing over the lakeland of Northern Ontario with Roy Granby (left) at the controls.
I. Vachon

THIS is a story of modern adventurers, setting forth to explore the Canadian northland in a Viking ship. Unlike the early Norsemen, however, these modern explorers did not set out with wide sails, spread to catch the wind. Instead they rose into the air on white wings, speeding off into the wilderness, where no man had flown before, and few had ventured afoot.

The craft used on these adventures was a Vickers "Viking," Mark IV, amphibious flying boat, well equipped with a 450 h.p. Napier Lion engine. For several years before these events transpired, she had weathered the summer skies over northern Quebec and Ontario, doing yeoman service as one of the aircraft owned by the Laurentide Air Services Limited. She carried passengers and goods on many missions to isolated spots, as well as doing some of the earliest forest fire patrol work ever accomplished in Canada.

Originally she was built by the Vickers people in England, and after purchase for use in Canada, she was shipped out in 1922. She had the honour of being the first amphibious aircraft ever to be placed in commission in the Dominion, and as a commercial aircraft—not to be confused with military machines—she continued unchallenged in that field until her fiery death in 1932.

Bearing Canadian registration G-CAEB during her entire career, her lettering was seen by thousands of people throughout the Dominion, and her hull dipped into more lakes and rivers across the country than any other aircraft can probably lay claim to, even today.

As early as August 1924, "EB" began carving a name for herself in our flying history by accomplish-

ing a 900-mile flight, spread over a period of twelve days. With pilot R. S. Granby at the controls, the journey began from Remi Lake, Ontario, to follow along the course of the Albany River to Fort Albany on James Bay. From there she flew up the coast to Attawapiskat, then south again to Moose Factory. The return to railhead was by way of the Moose, Mattagami and Groundhog rivers. The expedition was made for the purpose of paying treaty money to the Indians on the numerous reserves. Mr. Aurie, the official of the Department of Indian Affairs who was carried on the flight, expressed the greatest admiration for the crew, machine, and the method used in getting him around, which in the ordinary way, by canoe, would have taken many weeks.

In 1925, an American mining syndicate obtained the machine for a projected exploration trip into the northern wilderness of British Columbia. They also signed on two Canadian pilots, the late J. Scott Williams and the late C. S. "Jack" Caldwell, the former as pilot, and the latter as assistant pilot and engineer.

The amphibian was shipped from Montreal by rail to Prince Rupert on the Pacific coast, and after being assembled and test flown, Scott set her nose for Wrangell, Alaska, leaving the British Columbia port on June 1st. The nine members of the prospecting party with Mr. Little in charge awaited their coming, and were flown up the Stikine river to Telegraph Creek, B.C., in two relays. From that interior British Columbia point, men and supplies were flown into the Dease Lake area where a suitable base was established.

During the summer, the airmen flew the Viking to some of the most remote parts of northern British Columbia, penetrating in some cases to areas which had never before been seen by white men, and prob-

ably few red. Parties of men were set down in various out of the way places, to be picked up again, and moved to other locations, when prospecting in that particular locality had been accomplished.

The entire area is wild in the extreme, with great peaks as high as ten thousand feet thrusting up all over the region; yet the entire flying undertaking was accomplished without a single mishap or forced landing, which speaks volumes for the skill of the airmen and the reliability of their Viking ship.

One lengthy journey, the longest they undertook, carried them far beyond the northern border of British Columbia, 150 miles into the Yukon Territory, following up the Dease and Frances rivers, to Frances Lake post. The latitude of the post site is between 61° and 62° north, so a glance at a map will prove that they earned the name of northern flying explorers without any doubt.

Numerous trips were also made to the Liard post on the Upper Liard river. A great many of the spots at which landings were accomplished were simply blanks on any maps obtainable, and as a matter of fact, it is much the same today. They carried on the work for six full weeks before the project was called to a halt, and the airmen ferried all the party back to Wrangell, from which point Mr. Little and several others were flown down the coast to Prince Rupert, landing there the third week in September. Further orders were given to Scott Williams to carry on by air down the coast to Vancouver, and the trip was accomplished without incident.

A total of ninety-five flying hours was chalked up for the entire venture, which actually was the first mineral exploration mission by air in northern and western Canada.



The Viking beached on the Stikine River near Telegraph Creek, June 1925. Right: J. Scott Williams, her pilot at that time, standing by the nose of his craft.



"EB" was dismantled at Vancouver, and shipped back to Sault Ste. Marie, there to be placed in storage for the winter in the repair shop of the Ontario Provincial Air Services.

She can hardly be said to have rested up until the following spring, because all but her engine was given a complete overhaul, and early in 1926, when an offer to purchase her was made from a Canadian source, the deal was clinched, and she was commissioned to go on another exploration flight like the good Viking ship she was.

From the Laurentide people, she passed into the hands of a group of investors from Alberta, operating under the name of Northern Syndicate Limited, whose object was exploration for minerals in the little known areas of the Northwest Territories, southeast of Great Slave Lake.

When the syndicate took her over, they procured the services of her former co-pilot Jack Caldwell, as pilot, and obtained Mr. Irenée Vachon as engineer—a mechanic who, even at that date, had seen long service with aircraft engines, having originally been in the employ of the Napier Company in England. The dismantled machine was packed aboard a flat car, and once again she rode disdainfully across the prairies. This time the end of her rail journey was Edmonton—at least for the time being.

She arrived in the freight yards of that northern metropolis at the beginning of May 1926, and after a suitable machine shop had been located, the Napier engine was taken there and given a very complete overhaul. It is of certain interest to note that, although there was no air mail or air freight service across the Atlantic, or across Canada, in those days, an order for numerous parts for the engine sent by wire to the Napier works in England received such prompt action that all the required items were in the engineer's hands exactly sixteen days from despatch of the telegram.

A month elapsed at Edmonton before repairs were completed. The machine was again put in the railroad's hands for delivery to Lac la Biche, north from Edmonton some 127 miles, and on June 16 her assembly began in the open, close beside the lake.

Facilities for handling the machine and fitting her engine in position were poor, as can well be imagined, but Vachon rigged up an ingenious derrick, using part of a nearby tree, and at last the job of putting the machine into flying shape was done, taking just under ten days.

The first test flight, and the first time she had been in the air since she settled to a landing on English Bay at Vancouver the previous fall, was made on June 22 and next day Caldwell and Vachon set off for Fort Fitzgerald. "EB" however, was not the first aircraft to pass along that particular part of the route, as the Imperial Oil planes had winged their way over the area four years previously (see "First Flight Down North," *The Beaver*, March 1945).

Caldwell and Vachon had flown alone to this point, as the late G. H. Hutton, manager of the prospecting party, consisting of Mr. Dunn, Mr. Pollan, geographical observer, and Mr. Meakel, surveyor, had travelled to Fitzgerald aboard the Hudson's Bay Company's river steamer *Fort McMurray*, with all supplies.

On June 30, the establishment of caches began. Once located at their final campsite, on the sandy beach of a large lake (which they named Caldwell lake after their pilot), situated at 61° 30'N—107° 30'W, a number of flights were made north into the Barren

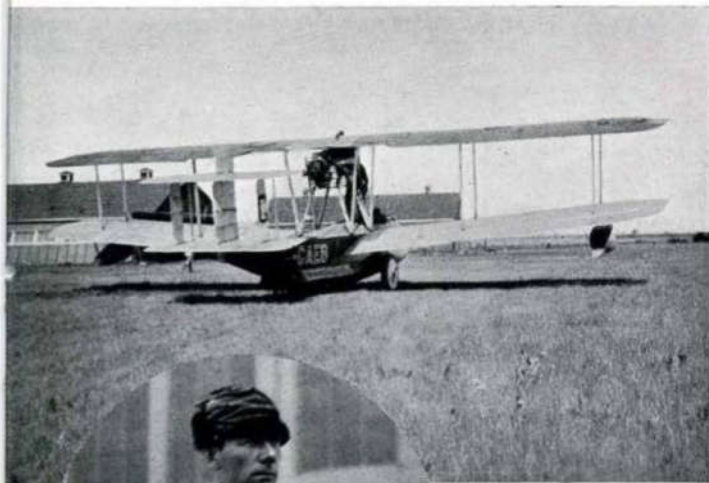


Engineer Irenée Vachon (left) used a tree to rig up a derrick on the shore of Lac la Biche when he lowered the 12-cylinder Napier Lion engine into the Viking's hull in June 1926. *I. Vachon*

Lands, and on several occasions they penetrated over two hundred miles into the flat rocky wastes, where landmarks of a defined nature just didn't exist. The altitude of their camping ground was some 1300 feet above sea level, and actually was on the top of the height of land in that vicinity, where the rivers form to run either to the Arctic shores, or to wander south and eastward, to flow into Hudson Bay.

By the beginning of August, the nights were turning cold, with thin ice forming on the lake, so proceedings were halted and the entire party flew back to Fitzgerald, reaching the Fort safely on August 15. At Fitzgerald orders were awaiting them to proceed to Edmonton, and on August 22 they left for Outside.

At Edmonton the prospecting party said good-bye, and the airmen received further instructions to carry on by plane to the R.C.A.F. air station at High River, south of Calgary. When they landed there on September 4 they set a record in Canadian flying history, as according to Mr. Vachon, it was the first time an



The first landing on wheels made by any amphibious aircraft in Canada. G-CAEB at High River, Alberta, September 4, 1926, and (inset) her pilot, Jack Caldwell. I. Vachon and Irvine Parachute Co.

amphibian machine had accomplished a "ground landing" at any point in the Dominion. Although the Vickers "Viking" was an amphibian, and could land equally well on land or water, she had never before touched her wheels to earth directly after a flight, and during her entire career, it is the only time she ever made such a landing. Of course her wheels were made good use of during her life, as she was taxied in and out of water, on ramps and beaches many a time.

Until the fall of 1928 she lay dismantled in a hangar at High River, and as disuse means deterioration, it seemed as though her days were numbered. Then along came a Mr. B. Lundy of Calgary and Vancouver, who purchased her from the syndicate, and he had her hauled by truck and trailer to the foothill city.

There was much to be done to her after two idle years, and a portion of the work was undertaken in the Technical School at Calgary before her owner decided to ship her to Vancouver, B.C., for completion. Emil Kading, a well known air engineer, was hired to overhaul the Napier engine, while other work progressed on the craft itself.

In the spring of 1929, the ship was hauled out to the R.C.A.F. station at Jericho Beach, and after being rigged, she was test flown by the station commander, Lieut. Earl McLeod, accompanied by Kading. Her performance in the air proved to be on a par with any flying she had previously done. Her new pilot-to-be was a Mr. Van der Byl, well known at the coast; but during a flight in the Viking, while he was being given a refresher course by Sergeant-Pilot "Billy" Wells, of the R.C.A.F., misfortune arrived in large doses.

The doses were of castor oil, which was used to lubricate the massive Napier engine. Unfortunately, the supply which Mr. Lundy had acquired must have been in storage for years in some corner of a warehouse. On this particular flight, the craft was near Bowen Island on Howe Sound, several miles from the air

station, when the engine began to act up, and soon it was almost red hot. A landing was quickly made on English Bay. A fouled water circulation was at first suspected, but on stripping the engine the cause wasn't far to seek. The castor oil had formed into a thick, gooey mess, every bearing had melted with the heat, and the engine seemed beyond repair.

Until February 1932, the Viking hid herself away in storage in Vancouver; then once again new hope surged within her, as an enterprising Vancouver resident, Captain Fred Clarke, purchased her from Mr. Lundy. Boeings Limited of Vancouver were given the job of putting the hull and wings into shape, the latter being completely re-covered.

The apparently ruined motor was thoroughly stripped down to every nut and bolt, and H. E. Clarke, engineer brother of the captain, went to work on it. A master craftsman at his job, he fashioned new bearings throughout, making a number of new aluminum cylinder heads, and divers other items. At last he put it together again, and when tested, and later test flown, its twelve cylinders turned out better revs. and showed more power than ever in its life before.

The first flight on her new lease of life was on August 8, 1932, and several flights during the month demonstrated her serviceability. On one occasion with a full passenger list, she was easily taken up to 10,000 feet, and still had plenty of climbing ability to spare.

The intention of her owner was to send her north to the Yukon in the summer of 1933, on prospecting trips similar to those she had flown with Scott Williams at the helm in 1925. Fate, however, had other plans in store, which prevented her ever seeing her old stamping grounds again.

On September 16, 1932, she came to a tragic end—though fortunately there was no loss of life. She was two thousand feet aloft, piloted by the late Gilbert Jenkins, with Bill Bolton acting as engineer, when a gasoline feed pipe to one of the carburetors snapped, spraying fuel over the red-hot exhaust pipes, and in an instant the motor was a mass of flames.

Passengers aboard at the time, Captain Landheim, Floyd Kurtz and Mrs. Reece, received an unexpected thrill and not a little scare, as the pilot put the flaming craft into an almost straight dive, and made a very fine landing in quick time.

People in small boats, putting out from shore, quickly rescued all aboard, and although the engine was later salvaged, the proud Viking herself became a total loss. Her bones may yet be resting at the bottom of the channel of the North Arm of the Fraser river, where she sank near Dominion Mills, going to her Valhalla in a blaze of glory, like the true Viking ship she was.

The final chapter is a worthy end to an illustrious career. The engine was donated to the National Research Council by Captain Fred Clarke, and after suitable overhaul and fixing up, it stands today, clean and shiny, in the aeronautical section of the National Museum at Ottawa.

Few who see it, with the brief uninspiring description, "Napier Lion aircraft engine, No. 24634, originally fitted to Vickers 'Viking' aircraft, Mark IV, G-CAEB," will ever realize that before them stands one of Canada's most famous airplane motors, whose unfailing power blazed so many of the pioneer air trails over our Dominion on aerial ventures, which have now slipped silently into the most brilliant pages of our flying history.



PITSULAK is an Eskimo who trades at Cape Dorset. He is an important man in his community. Last winter he was flown down to The Pas, Manitoba, suffering from an internal ailment. From there he took the train to Winnipeg, where he was a patient in one of the hospitals. He brought with him a great many negatives of pictures he had taken, of which some of the best are reproduced here. Now he is recuperating in the Indian Department hospital at Clearwater Lake, Manitoba.

Left: Self portrait.

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(Pictures by Pitsulak)





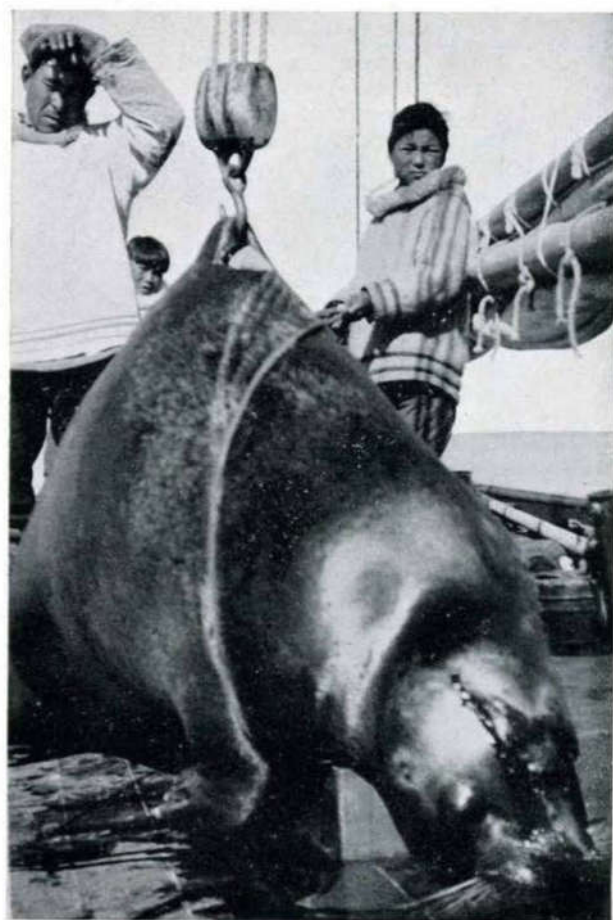
The Company's Peterhead boat off for a hunt.



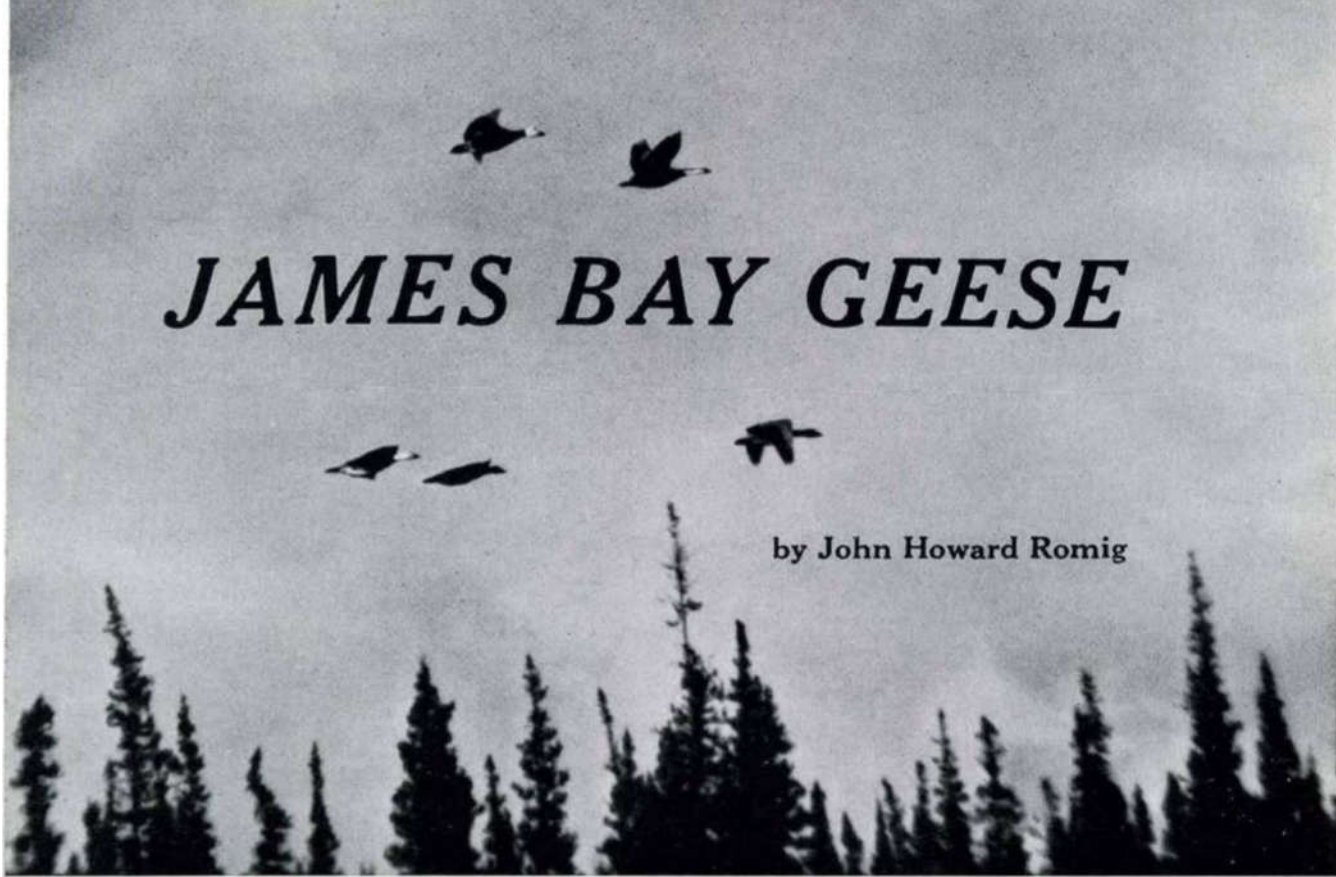
Young family.



Above: Any time is "Fort Garry" time. A mug-up on board the Company's boat.



Right: Good hunting; a huge square-flipper seal or *ookjuk* hangs by the skin of his back.



JAMES BAY GEESE

by John Howard Romig

Geese riding a September gale over the James Bay country.

Lorene Squire.

LIKE many other hunters who get between-season excitement in day-dreams, Fred Dinsmore and I had long harboured an urge to stand one day on the salt-crusted shores of James Bay in the goose hunting season.

The tangy smell of cold misty rain blown across vast northern seas; bleak sand and mysterious muskeg holding untold stories of early adventure; the lure of the unknown; the haunting music of wild geese streaming overhead; gun-action; camp-fires; the taste of food outdoors; the relaxation of sleep for a tired body and a happy heart—these enticing images had been an annual challenge and were not to be denied.

The train slowly wobbled us northward toward tide-water. Ancient wooden coaches creaked, oil-lamps rattled in their wall-brackets and a cow in the car forward bawled its protest. The ruddy face of a tiny papoose registered annoyance as the swaying train disturbed his lunching tryst with his Indian mother.

Johnny Smallboy, our Cree guide, was on hand when we pulled into Moosonee. Our equipment was quickly transferred to a canoe. As twilight changed to darkness we crossed the roiled brown waters of the Moose River to the Hudson's Bay Company's post at Moose Factory.

Next day we pushed off from the dock, which stood like a stilted cat-walk at low tide. Three hours later, on reaching the mouth of the river, the big canoe swung to the right along the east coast of James Bay.

Johnny grasped a long pole and started pushing it down beside the stern, feeling bottom as we went, and indicated that we do the same at the bow. We were surprised to find the water was only two or three feet deep, although we were a mile or more from land.

The Indians, Johnny told us, never travelled over deep water in a small boat on the open sea. An offshore wind might blow them to the far end of Hudson Bay!

These sprawling, muddy tidal flats are said to be the last stop for blue geese, before they take off on a continuous migration flight, late in October. Then some days later, they coast to a landing on a similar feeding-ground, lush with the same type of vegetation, down where the Mississippi fades into the Gulf of Mexico.

All the way along the river, Fred and I had been prodding Johnny to show us some geese. "Not yet," he would shout above the roar of the motor. We were scanning the boulder-strewn shore line when suddenly the stolid landscape seemed to lift into the air. Blue geese in thousands were rising in a ragged black cloud. Across the water came the surging thunder of wings, mingled with their strange jargon of screaming alarm.

Fred and I were like two wide-eyed, impatient kids waiting for a circus to begin. The geese swung eastward in dark weaving shreds and landed a mile away.

Johnny headed for his camp-site on a gravel ridge paralleling the shore. The passengers fidgeted. All our stuff had to be packed across a mile of mud-puddle flats, and the canoe left tethered to a stake until there was a favourable tide, to bring it in. I reached the ridge somewhat in advance of the others and sat down to cool off. It was late afternoon but the October sun beat down as on a summer day.

Of a sudden the vast empty stillness was broken by the shrill jabbering of geese. Grabbing my gun, I slipped behind some willows. There they were, ten blues coming straight for me, following the ridge but

quite high. As they zoomed overhead I fired twice. I could hear the shot go p-u-r-r-t, p-r-r-r-t on their outstretched wings, but they kept on going. A few minutes later Fred arrived with his load.

"Say," he asked me, "Aren't you going to pick up your goose? I was watching them and shortly after you shot, one big fellow coasted down. He's out there in the grass."

I had no idea where to look, so Fred did the retrieving. I had hit the white-headed leader, breaking a wing-pinion, otherwise he was as fit as ever. We used this fine specimen for close-up movies, before consigning him to Johnny's culinary art.

The ring of an axe aroused us. Johnny had unrolled from his eiderdown quilt, his one item of bedding, and was rustling the morning's breakfast. The little sheet-iron stove inside the tent glowed red in the early darkness.

Fred and I are old enough to indulge in all the comfort available. Our air mattresses and sleeping bags have the relaxing advantages of the most advertised bed trappings. In the fragrant warmth of the fire, pyjamas were discarded for hunting clothes. Outside, a heavy sheath of frost glistened on the tent.

Clumps of willows clustered about our camp on the gravel bar. Behind them lay a vast stretch of muskeg, rimmed with dwarf spruce. Johnny's knowledge of his native terrain was worth all that we paid for it. "We'll go back in the muskeg," he announced with finality. "The tide is out."

Single file Fred and I followed him along the ridge. The figures of my companions were but black outlines as we crawled over a maze of frost-covered drift logs. Occasionally Johnny would stop, lift his head and sniff the air, then veer off to right or left. It all smelled and looked the same to us, just endless dank muskeg. Johnny was sensing the wind direction, and picking a spot to set the decoys. Dawn was breaking with a faint fiery glow.

Willow branches were hastily formed into a circular blind. Johnny's axe clunked into the muskeg, cutting chunks of earth for decoys. Short sticks served as necks. The crowning touch came from a roll of toilet paper, giving the bogus geese white heads.

James Bay mud flats when the tide is out.

With a low whistle Johnny motioned us down in the blind, at the same time flattening himself in the grass. Out of the dim west came the raucous gabble of flying geese. A big flock was trailing down the coast, in our direction.

"Down, down, here they come!" came Johnny's warning.

Fred and I were on our knees, our noses almost in the mud but with one eye cocked in the direction of that weird thrilling melody.

"Now!" shouted Johnny.

We came up with guns blazing. The air above and behind us was a riot of screaming, dodging birds. We scared them plenty.

Johnny sat up in the grass. The look on his face needed no interpretation. He had the poise of a cigar-store Indian. His silence shouted his opinion of us. Fred is a quiet fellow too, so I undertook the pseudo post-mortem.

"We didn't lead them enough," I conjectured. . . . "We were too slow. . . . They didn't look to be flying so fast."

"Hell!" said Fred.

Johnny walked off the scene and made a couple of decoys for snow geese with draperies of white cloth. Picking a straw to chew he sat down again.

Flutters of goose chatter drifted in from the flats. A jumble of winged bodies were rising from the feeding grounds and heading up the shore. Again we knelt in our positions, hopefully observing them, until they disappeared. Time went on at a snail's pace.

Johnny had removed his coat. A sweater circled with orange, black and yellow bands, glared like a prostrate barber pole. Mute testimony that he, having no gun, thought he might as well frighten some geese too. Off to our left a big V formation came driving toward us over the rim of spruce trees. Despite his better judgment, Johnny's responsibility asserted itself. "Get down," he commanded.

We got down in a regular salaam to the gods of chance. I had a crick in my neck. Knees ached and I remember a flash of sympathy for people who spend much time in such a position, either in supplication or work.

Hearts pounded against heaving ribs.

J. H. Romig.





Setting out mud decoys.

Lorene Squire.

Would they spot the decoys? Damn Johnny's sweater. I took a peek through the branches. Yes, they were coming with deceptive slow-moving wings. Johnny was crooning some sort of a heathen ditty. The geese swerved to his call, setting their wings for the decoys.

This time we were ready for them and judged our own timing. Two lead birds folded at the bark of our opening shots, one of them doing a spinning crash-dive into the blind. Our second and third shots threw the flock into a disorganized frenzy. Geese splashed down in nearby puddles. Feathers floated in the listless air. Johnny hotfooted after a wounded bird.

Everybody was grinning now. Johnny propped the geese in lifelike positions among the decoys, with heads erect on forked sticks. Dame fortune stayed with us. Our quota for the day was full to overflowing before the sun told Johnny it was time to head back for lunch.

We took a short cut through shoulder-high rushes, Johnny packing the geese. The ground was in rolling hummocks, plastered with slippery muck deposited by the tide. It had been getting slicker every six hours since the beginning of time. To negotiate that carpet of slime required the balance of a tight-rope walker, the gyrating grace of a ballet dancer, the dexterity of an acrobat and the blind luck of a drunk. The figure of Johnny got smaller and smaller each time I gambled to look for him. Fred was no example to follow. With each attempted stride his feet went in unpredictable directions, reminding me of the antics of a new-born calf.

These involuntary calisthenics produced their own crop of irritants. Hip-boots and windproof hunting clothes were working in reverse. Soaking, hot and struggling for air I set a course for a little rise.

The author (sitting) and his friend at their camp on the ridge.



The manufacturers had boasted of a rubber seat in my pants. Why not use it? With the courage of a fresh resolve I stepped into ignominious disaster. One foot slithered east, the other west. My cherished gun was catapulted into space. I lit on my face in the slime and the game was over.

Johnny had many responsibilities to tax his unbounded energy. Fred and I having switched to fresh clothes, lolled against a drift log with outstretched legs. Tired and hungry, we watched him bustle about the fire preparing bacon and eggs for lunch.

A nearby river cut through the ridge to mingle its clear fresh water with the sea. Every time we approached it, startled schools of speckled trout flashed upstream in hordes.

The choicest of mallards and pin-tails gave variety to our hunting. The days sped on. Ducks hung in bunches from the willows around camp. Geese in full variety straddled a long pole we had rigged up on tripods. There were many of them, now close to our season's limit.

Now another day was nearly spent. Opalescent shafts were fanning out in the sky from the red-gold blaze of the setting sun. A word to Fred and we were again trudging across the flats, with camera and guns. Distant squadrons of geese trailed like wavering threads across the western heavens, their weird music drifting to us over the muskeg. Some wayward mallards whistled overhead, set their wings and splashed into a nearby pond. The mystery of evening in the far north

surrounded us. We stood erect listening, watching, absorbing.

Three specks grew out of the illuminated sky. White wings caught the light as they sped toward us. Now they were in range, skimming the grass at eye level. Together we swung and fired in rapid succession. Three snow geese plummeted to earth.

Johnny stood over a driftwood fire, tending his Dutch oven. The flickering light played on his contented features, as he turned a goose in its final browning stages. There were potatoes and whole onions amid the spatter of hot butter. Coffee blustered its tantalizing breath from a blackened spout. We ate, drank and were merry.

That night, spreading a ground sheet on the gravel, I lay on my back, watching, listening. The aurora borealis was playing a colour symphony. Spiralling, dancing ribbons in the full range of the spectrum cascaded upward from the northern horizon. A star let go its anchorage, blazed a trail across the dark blue dome and lost itself in the whirlpool of shimmering fire. Below, the still cold surface of the sea mirrored this marvel of Nature's magic.

The silence was broken by the far off chatter of a convoy of geese, urged southward by the migratory instinct. There was the whistle of myriad wings beating the air; the increasing clamour of their talk as though questioning the course; they passed over unseen and were gone.

Blue geese coming in to the fresh water marshes on a stormy day.

Lorene Squire.



CASTOR CANADENSIS

The appearance of the beaver is subject to change without notice. Canada's national animal is such a loose-skinned, ungainly rodent that his shape is almost unpredictable, and for this reason, perhaps, photographers as well as artists run into difficulties when they try to portray him. It will be noted here that his tail is shorter, his front legs longer, and his hind feet larger, than is commonly supposed, and that sometimes—especially when he's wet—he gets into quite unbeaverish attitudes. On such occasions he can be indentified only by his celebrated tail.



Above: Doris Forbes of Red Deer, Alberta, with her two-year-old pet, Mickey, in 1941. (See *The Beaver*, Dec. 1941) Arthur Keen.

Right: A slightly damp specimen ambling along at the New York Zoo.



Below: A wild beaver emerges from the water. Note the length of the foreleg. Wm. Blowey.



Left: Very few people would recognize this as a beaver, if it were not for his tail, on which his hind foot is resting. Lorene Squire.





Above: Mickey, now seven years old, reaches for a tidbit.



An excellent picture of a beaver, taken in captivity.
N.Y. Zoological Society.



Above: This beaver climbing out of a river looks like a half-drowned but well-fed rat.
Lorene Squire.



Above: This photo clearly shows the size and construction of the beaver's feet. Note also the long upper lip.

Below: Mickey and Doris enjoy a book together.



Below: Mickey strikes a pose that is a favourite with artists.





Chemakane or Tshimakain Mission, where Geyer met Revs. Cushing Eels and Elkanah Walker. From a plate in Governor Stevens' "Report of Explorations," 1855.

A BOTANIST at FORT COLVILLE

by Grace Lee Nute

FORT Colville as a Hudson's Bay Company post in old Oregon on the upper Columbia River has drawn little attention in these pages. For that reason it may be all the more appropriate to quote from the letters of an able but little known botanist, who spent part of the winter of 1843-44 there.

Karl Andreas Geyer (1809-1853), who also signed himself as Carl A. Geyer, was fairly well known in botanical circles in his own day, but in the intervening years he has been neglected both as a scientist and as an explorer. His own age knew of him largely because the enterprising editor of the *London Journal of Botany* published Geyer's own narrative of his Western travels in North America in several instalments in the 1840's. These recount how in 1843, after eight years of botanizing in mid-America with such men as Joseph N. Nicollet and Charles C. Fremont, this young Saxon joined the party of Sir William Drummond Stewart (or Stuart) of Murthly Castle, Scotland, to ascend the Missouri and pass on to the mouth of the Columbia.

An unprinted letter written by him in English, headed "Spokan Mission, Oregon Territory, Decbr 28th 1843," gives a vivid picture of his exciting and dangerous trip alone through the mountains after he left Stewart's party. It is also invaluable as containing his own brief résumé of his entire American life up to that point. Of the Rocky Mountain chapter he writes:

"I went up in the Suite of Sir Wm Drummond Stuart, (Earl of Lorn from Murthly in the county of Perth in Scotland), as far as the Colorado River, from there I went with the expedition of the Jesuits to the Flathead Ind., passing Lewis River and the sources of upper forks of the Madison, from there to Clark River, through the country of the terrible Blackfeet Indians; during the November I crossed the mountains

between the Salesh or Flatheads and the Skitsowich or Coeur d'Alene Ind, one of the most terrible journeys I ever made, especially in the midst of winter, crossing 76 streams (tributaries of Clark River). Some we had to swim; from there I crossed without guide and by the risk of my life and limbs the mountains between Skitsowich and Spokane River and arrived at Christmas day in the missionary station of the American board of [Commissioners for Foreign] Missions at the Spokan Indians, at the house of Mrss [Cushing] Eels and [Elkanah] Walker, Revds., where I was welcomed like a Christian, and indeed, I was in want of hospitality."

"From here," he continues, "I shall go on a visit to Fort Colville on the Columbia, being provided with a letter of introduction to Governor McLoughlin at Vancouver. I expect special recommendations from him to all the Forts of the Hudsonbay Co." He then tells of his plans to return to the Coeur d'Alenes and thence go down the Columbia to Fort Vancouver, and home by way of the Hawaiian Islands and the Horn to England, and, finally, Saxony. This letter also tells not a little about Oregon Territory and the invasion of American immigrants. It was addressed to a friend in New York and has been preserved in the collections of the New York Botanical Society.

By April, Geyer was at Fort Colville, for a letter written by him in German on the sixth of that month has been preserved. It commences thus: "Fort Colville on the Columbia or on the united Clark River about 250 English miles above the union of the two parts of the Columbia." This letter, he says, "will go by the Columbia proper, over the Rocky Mountains to Lake

of the Woods, Lake Superior, and Montreal or Halifax," evidently by a brigade of Hudson's Bay Company men.

Fort Colville was erected in the autumn and spring of 1825-6, taking the place of Spokane House. It was named by George Simpson after Andrew Colville, a director and later a governor of the Company. Simpson's diary of his first Oregon trip, 1824-5, under date of April 14, 1825, relates why he chose the site of the new fort: "We selected a beautiful point on the South side about $\frac{3}{4}$ ths of a Mile above the Portage around Kettle Falls where there is abundance of fine Timber and the situation eligible in every point of view. An excellent Farm can be made at this place where as much Grain and potatoes may be raised as would feed all the Natives of the Columbia and a sufficient number of Cattle and Hogs to supply his Majestys Navy with Beef and Pork."

Nearly twenty years later Sir George Simpson, for he had been knighted in the interim, wrote thus in his *Overland Journey Round the World During the Years 1841 and 1842*: "On reaching the summit of a hill, we obtained a fine view of the pretty valley in which Colville is situated. In a prairie of three or four miles in length, with the Columbia River at one end, and a small lake in the centre, we desiered the now novel scene of a large farm,—barns, stables, &c., fields of wheat under the hands of the reaper, maize, potatoes, &c., &c., and herds of cattle grazing at will beyond the fences. By the time that we reached the establishment, we found about eighty men, whites and savages, all ready in their Sunday's best, to receive us at the gate."

Such were the surroundings of the fort that greeted the young Geyer's eye, except that it was spring when he arrived. He himself does not describe the fort, but again we can fall back on Sir George Simpson's description of 1842: "Colville is a wooden fort of large size, enclosed with pickets and bastions. The houses are of cedar, neatly built and well finished; and the whole place bears a cleaner and more comfortable aspect than any establishment between itself and Red River. It stands about a mile from the nearest point of the Columbia, and about two miles from the Chaudiere [Kettle] Falls, where salmon are so abundant, that as many as a thousand, some of them weighing upwards of forty pounds, have been caught in one day with a single basket." Sir George, whose own flower gardens near Montreal were his delight, did not fail to note that "among the wild flowers in the neighborhood of the fort, we noticed the helianthus, the lupin, the monkshood, and the fuchsia, in great abundance."

Though Geyer writes that "the winter was moderately cold, with much snow (spoken of as 'little' here), vegetation commenced to show in the first weeks of March." Thereupon he launches into a technical description of the plants of the area, including also remarks on the geology and geography, for his distinguished German-American correspondent, Dr. George Engelmann of St. Louis, was himself no mean general scientist and botanist.

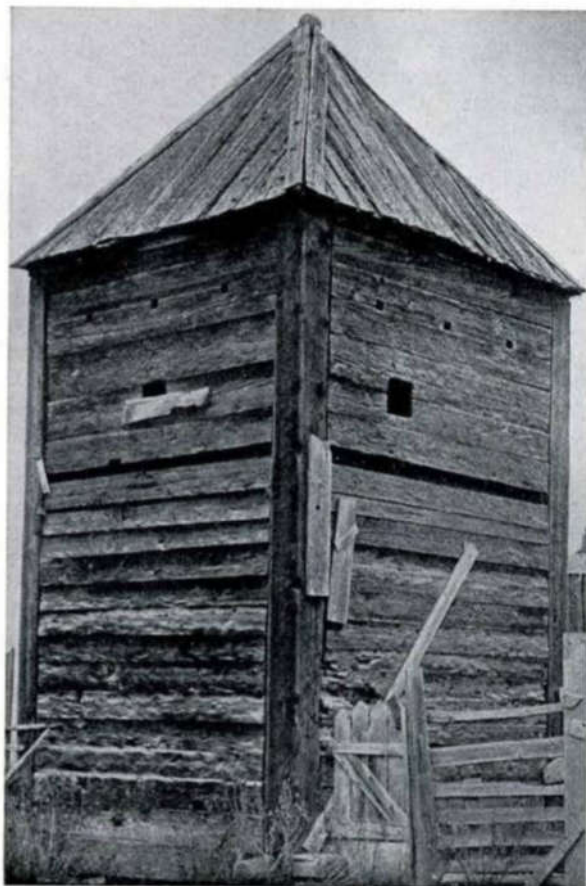
"As soon as I became acquainted with some of the Hudson's Bay Company factors," he continues, "I learned that Sir Wm. Stuart did not stand in the highest estimation here, on account of crude violations of hospitality at Vancouver." Geyer wonders next about his own reception there, having already sent on to Dr. John McLoughlin the letter of recommendation that Sir William Stewart had written in his behalf. This letter has been preserved in copy in the doctor's

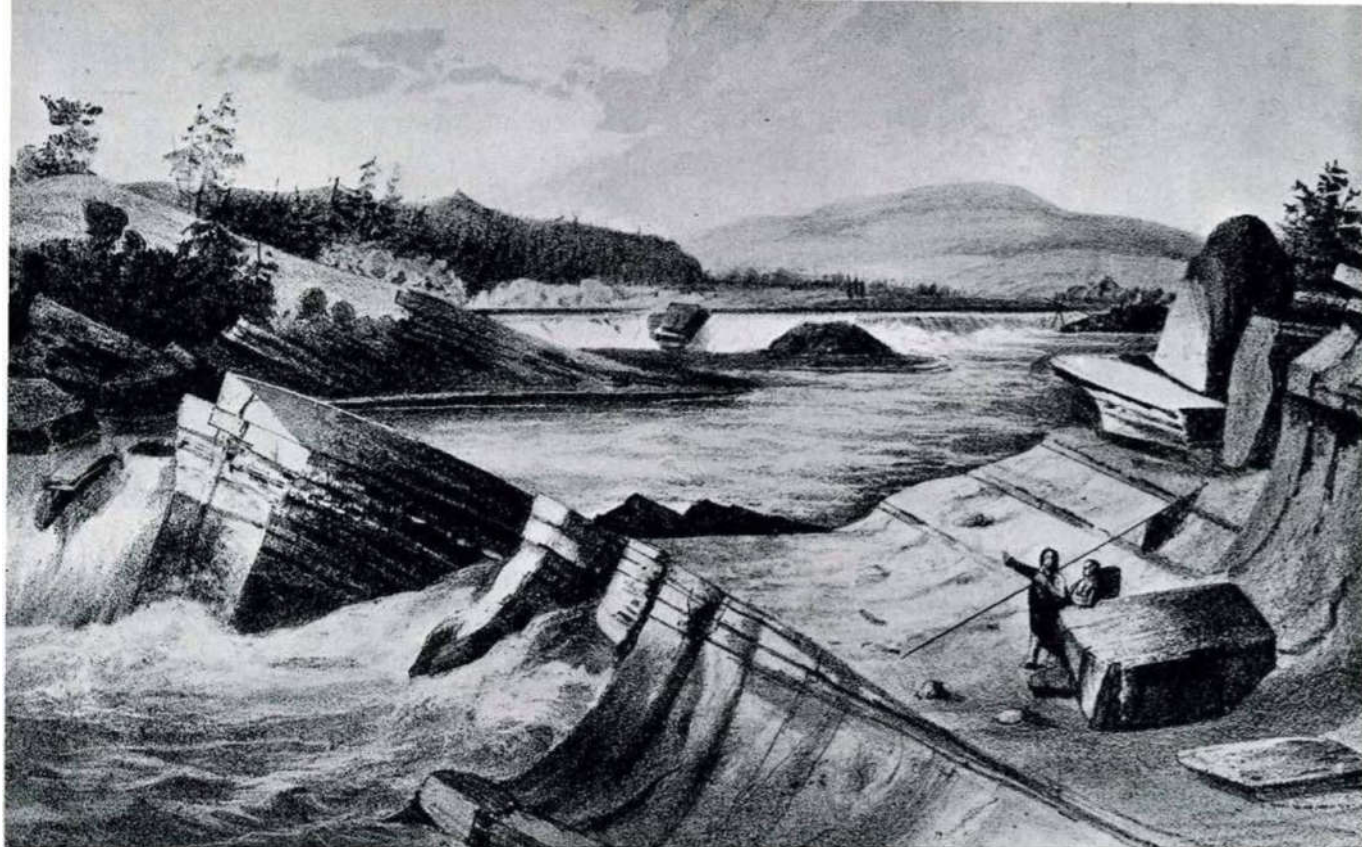
correspondence with the Company and reads: "Great Sandy Creek under the Windy Mountains 2d Aug. 43 Mr. Geyer a German of considerable Eminence as a Botanist will Visit Vancouver I Believe next Autumn and I am sure will recommend himself to you by his knowledge of Gardening and Specimens of plants he can give you of which I have spoken to him and of your taste for Gardening I think of hireing him to superintend my Garden in Scotland and if he has any Difficulty in settling for a passage home to England he may have what assistance you may consider Reasonable on my account."

Dr. McLoughlin goes on, in a covering letter, to state that "Sir William D. Stewart was Introduced to us by a circular from the Right Honble. E. Ellice addressed to Several Gentlemen in Canada Sir G. Simpson and the Chief factors and Chief traders Hudson Bay Company, and we never had any Difficulty before about his Drafts—But they were drawn on his Agent by himself he has made several trips from Scotland to the Rocky Mountains." McLoughlin answered Stewart's letter but his reply (to Geyer) missed him and went three hundred miles north to the upper waters of the Clark.

The man in charge of Fort Colville, Archibald McDonald, is next mentioned by Geyer: "Chief Factor McDonald here in Colville is a contributor to the British Museum and one of Hooker's correspondents, also an honorary member of the Botanical Society in London. Indeed, the officers of the Hudson's Bay Company are a group of rather substantial, educated men.

Bastion at Fort Colville, from a photo made by Frank Palmer in 1901.





Chaudiere or Kettle Falls, from a plate in Governor Stevens' book. They have now been inundated, owing to the flooding of the river by Grand Coulee Dam.

Frémont, I hear, was not too well received among them and anecdotes are told here about him which have a bombastic ring. Alas I must confess that I perceived in them something of F's character. So there must be some truth in them. In any case, Frémont is unsurpassable in the matter of speed; how exact he was is not for me to judge. His expeditions were made with unprecedented speed."

It is not strange that McDonald and Frémont did not become mutual admirers, for Frémont, with all his energy and daring, as evidenced in his recent trips to the mountains and his earlier trips about the upper Mississippi, on which Geyer had accompanied him, lacked some essentials of sterling worth. McDonald was just the kind of man who would see through him, for the chief factor had behind him a long and notable career. (See *The Beaver*, March 1944.) This year of Geyer's visit, 1844, was to be his last in the fur trade, as it turned out, for he went on a leave of absence at that time and did not re-enter the Company's service. It was he who discovered Blue Bell Mine in the Kootenay district of vein-mining of auriferous and cuprififerous sulphide and silver-bearing lead ores. Geyer mentions this discovery in his magazine account of his trip. The mine is now owned by the Consolidated Mining and Smelting Company, Limited.

"During the month that I have been here," continues Geyer, "a letter has come from northern Oregon to Chief Factor McDonald from an officer of the Company to the effect that the Indians had killed and eaten the same day the two Canadian express canoe-men sent out by the Company. They were killed and eaten not only by Indian men, but also by the women. Murder and suicide are common among these Indians—so is sorcery. Certain it is that contact with the whites has made them so wicked."

He continues: "Chief Factor [Peter Skene] Ogden, who has been in this region more than thirty years is just leaving for a year in the United States, to visit his friends and at the same time to publish two thick manuscripts, which will represent Oregon Territory as it is. I am now his fellow lodger and he has read aloud to me more than a third. Other gentlemen of the Company likewise busy themselves in their leisure time with literary efforts. They have a library at Vancouver and constantly circulate books from one fort to another. Here one finds Lyell's *Geology* and the *Asiatic Journal*. Another type of life here from that in the American Fur [Company's] fort!"

The reference to Ogden is the more interesting because controversy has raged for years over his possible publications. His biographer, T. C. Elliott, writes, "Beyond his personal letters the extent of Mr. Ogden's literary work is not certain," and mentions Jesse Applegate's reference to a manuscript by Ogden: "He showed the Mss. to Mr. Applegate; it comprised his own early experiences; he was the discoverer of the Humboldt river. We had no reading and Mr. Ogden gave it to me as a Winter's amusement. It was full of interesting episodes. Mr. Applegate revised and made many suggestions. It ran back to the union of the two Companies. Mr. Ogden brought it to Washington Irving who undertook to edit it, but died before its completion." Elliott comments: "And it is said of Mr. Irving that he did accumulate a number of manuscripts of this character but instructed that they be destroyed after his death, which occurred in November, 1859."

In 1853 appeared the now very rare little volume published in London anonymously and entitled, *Traits of American Indian Life and Character, by a Fur Trader*. Most persons today believe that Ogden was the author of it, or at least supplied the data in it. How-

ever, it can hardly be the thick manuscript in two volumes that Geyer writes about. So there is a faint chance that somewhere there may still be a document from the pen of one of North America's most famous and experienced fur traders. Robert Stuart's manuscript record was also in Washington Irving's custody, but in recent years it has been recovered and published.

After his reference to the literary efforts of Company men, Geyer goes into botanical technicalities again, mentioning among other matters, "Hooker writes to Mr. McDonald about a new species" of cactus "which Douglass found at Fort Walla Walla and of which he has left only a description." Geyer writes that he will try to find it. "The voyageurs give it the droll name of 'green toad.'" The Hooker of this statement, was, of course, Sir William Jackson Hooker of Royal Kew Gardens and the editor of the magazine in which Geyer's articles appeared in 1845 and later years. Hooker's name is attached to the Latin appellation of many a plant in North America, such as Hooker's orchis, for example. Here it may be mentioned that Geyer found one very rare plant at Fort Colville, as he mentions in his printed article: "A very rare plant is the *Hedyotis* 460, which I picked on the rocks at the Kettle-falls, near Fort Colville, and of which I found only one specimen." This is a member of the *Houstonia* family, to which our common bluets also belong.

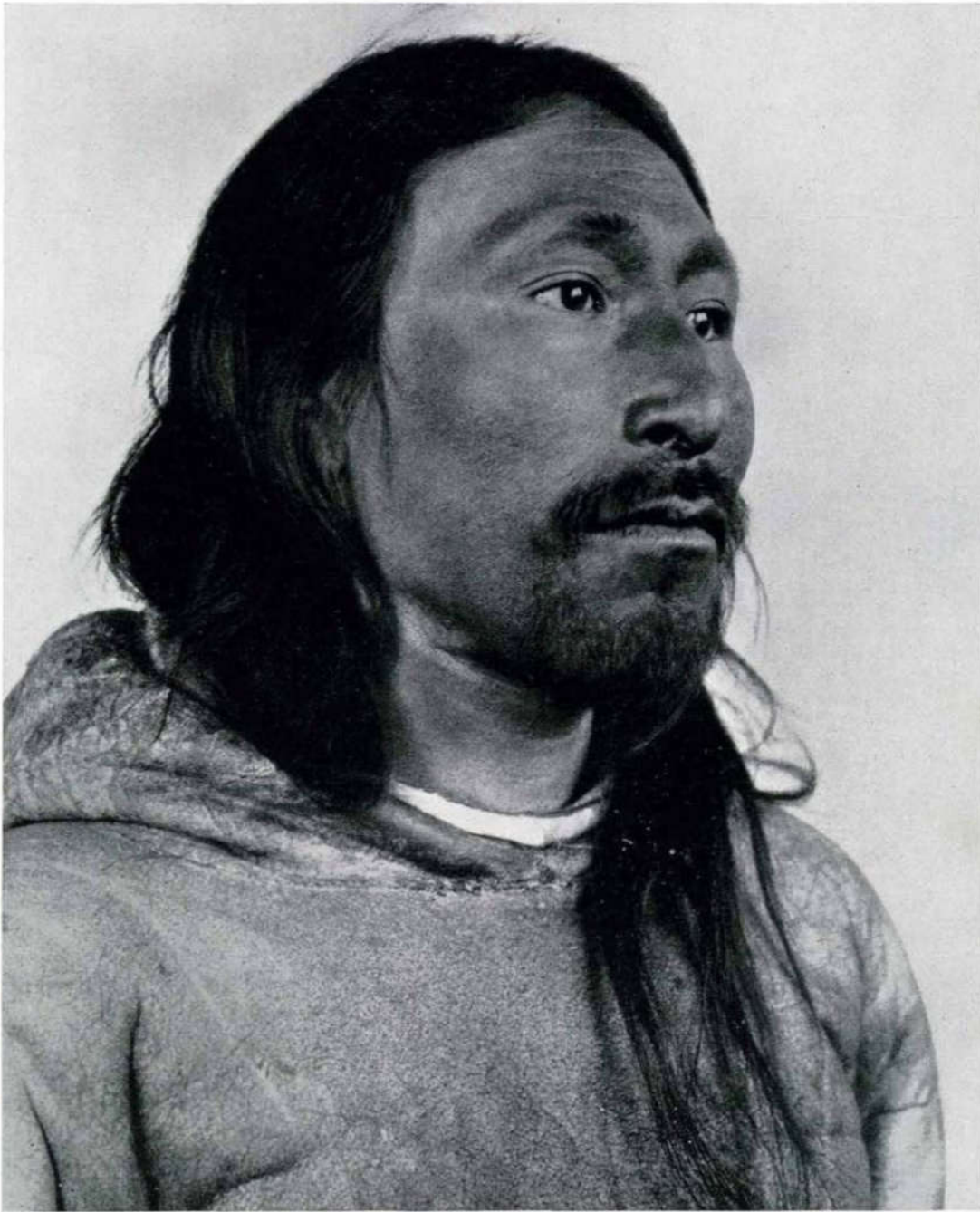
"The ingratitude experienced by the Hudson's Bay Company in return for much help to one missionary, and to missionaries in general has brought a decision," comments Geyer. "No one hereafter is to be helped,

runs an order of the general council in London. All the worse for me; but hope has been given me of a ship passage to Owahu (Honolulu)." The Company certainly broke its own rule, for Geyer made the long trip home on a Company ship, the *Columbia*. However, McLoughlin had considerable difficulty in getting reimbursement for the amount of the passage, one hundred pounds sterling, as well as for £22 19s. 9d. advance Geyer from the Vancouver stores. On October 8, 1845, the Governor and Committee in London wrote to McLoughlin, Ogden, and James Douglas to the effect that all bills had been honoured "with the exception of one for £22. 19. 9 drawn by Mr. Geyer on Sir W. D. Stewart, who, on application being made to him for payment, stated that he had remitted the money to Mr. McLoughlin."

Geyer, in his letter from Fort Colville, inquires about Nicollet, not knowing, of course, of the French explorer's untimely death in 1843. He also writes of other mutual friends, of his own weariness and plans for another life in Europe, and so forth. It is a long letter. Finally, "The express post is expected every moment and I must hurry and close. Letters on this route must go by foot over the Rocky Mountains, and as the Hudson's Bay Company has many "Paynote," ["paying letters"?] it is all the more a favor for them to take a letter." The letter, carried in Ogden's train as he traveled eastward, went on its long journey, and, as we know, reached its destination, St. Louis, where it has been preserved over a hundred years in the botanical gardens along with many other letters from Geyer to Dr. Engelmann.

Fort Colville. An old photo in the B.C. Archives.





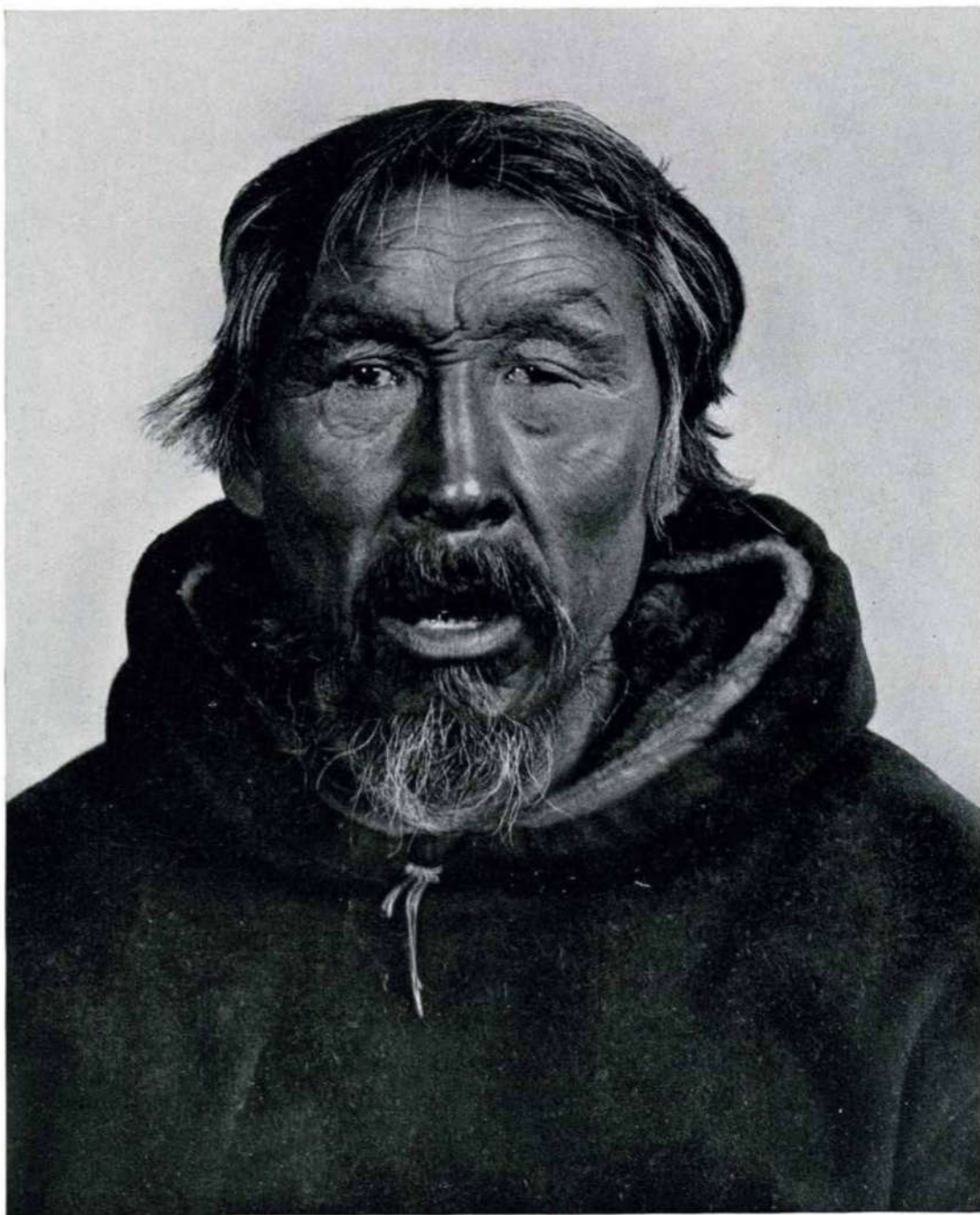
Neet-ta-yook

Pelly Bay

PRIMITIVE MAN

Eskimo Portraits
taken some twenty years ago

by *Bob Stewart*



"Bye and Bye"



Ak-ki-ootak

Pelly Bay



Ok-kah-loo

Iglolik



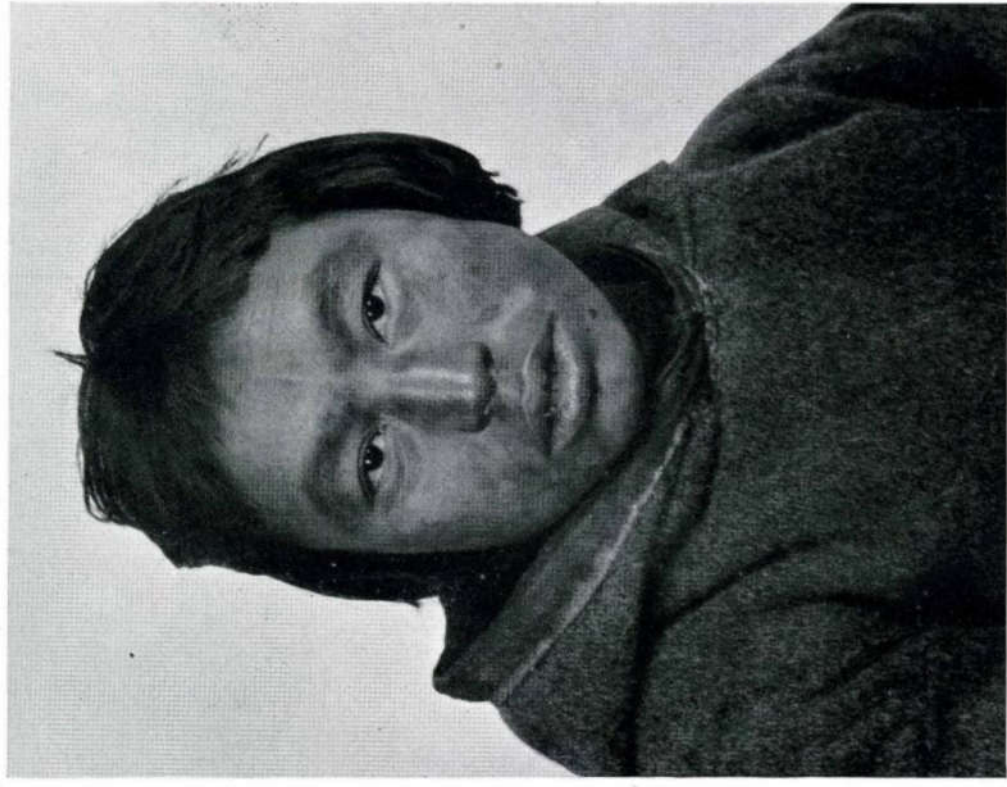
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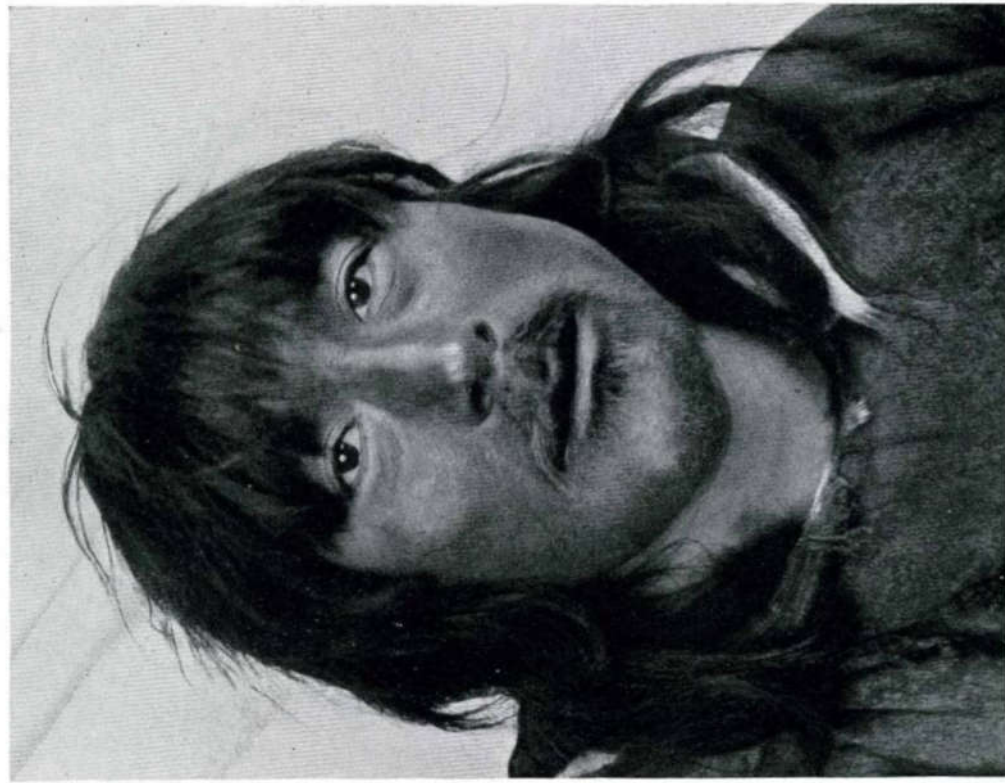
Pelly Bay

Shook-shoo-took



Mir-ho-to-it

Igloodik



Too-le-er

Pelly Bay



Koom-oo-kak

Pelly Bay

JAMES W. TYRRELL, EXPLORER

by Edwin Mills

FOUR thousand six hundred miles through the sub-Arctic regions of Canada, guided only by such scattered fragments of information as could be gleaned from earlier explorers who had from time to time touched the border of the area in question!

At the turn of the century James W. Tyrrell, a native born Canadian, under instructions from the Department of the Interior, successfully accomplished one of the most remarkable land voyages ever attempted in that bleak and inhospitable part of this continent.

On its completion Tyrrell had accurately set down seventeen hundred and twenty-nine miles of survey, taken a host of photographs, made a series of astronomical and magnetic observations, kept a complete meteorological record of the journey, brought back specimens of rock formations and minerals met at different points, and procured a large botanical collection.

Historically, he corrected findings concerning Chesterfield Inlet made by an expedition from England in 1747 in the vessels *Dobbs Galley* and *California*, and by the expedition of Captain Christopher in 1761, both seeking the discovery of a northwest passage.

Samuel Hearne's record and the route of his famous journeys of 1769 to 1772 in this region were carefully checked. Hearne's famous northern "Garden of Eden" in a valley of the lower Thelon was visited, its existence and location established, much game seen along its banks. But, as predicted by him, the early settlers had left the spot, for reasons other than lack of food and fuel.

The report of Captain Duncan in 1792 stated that exploration of the river to the west of Baker Lake would not lead to "any useful discovery." Tyrrell

proved, by a descent to the mouth of the Thelon, that a river of considerable volume does come from the westward and empties its waters into Baker Lake. Further, he disclosed its great possibilities by showing it was navigable far inland.

Confirmation as to the findings of Sir George Back's explorations of 1833 to 1835 were carefully made, and details of the territory surrounding the upper waters of the Thelon River were painstakingly and accurately laid down.

Indeed "accuracy" might be the keynote of the work of Tyrrell, for even to-day with the vast accumulation of scientific knowledge concerning the Canadian north, repeatedly one hears that such and such a chart or statement is "according to Tyrrell."

Warburton Pike, who made an expedition to Back's River in 1892, raised the query as to why further explorations were not made to that section. There were still many thousands of square miles where white men had never been.

Shortly afterwards, the Tyrrell brothers, under authority of the Geological Survey Department, explored the territory northeast of Lake Athabaska. The thrilling story of that great journey across the uncharted barrens by canoe, sled and finally snowshoes is well known to many thousands of Canadians through the medium of Tyrrell's book *Across the Sub-Arctic of Canada*, a writing which reached its third edition in 1908.

However, the section lying west of the Dubawnt and Thelon Rivers and comprising an area of some

Fort Resolution, from where Tyrrell's party struck eastwards across the ice of Great Slave Lake in April 1900.

C. W. Mathers.





Tyrrell's party proceeded from Great Slave Lake to Artillery Lake, then across the divide to the Hanbury and Thelon Rivers. From the mouth of the Dubawnt, Tyrrell turned back to explore the sources of the Thelon, and the divide.

ninety thousand miles, remained shrouded in mystery. This country James Tyrrell determined to explore, and as the details of this arduous work have received but scant attention, they have been made the subject of this article.

Starting from Edmonton, Tyrrell arrived at Fort Resolution on the southwestern shore of Great Slave Lake on April 1st, 1900, after a tramp of eight hundred and fifty-six miles.

Accompanying him as assistants were C. C. Fairchild, O.L.S., of Simcoe, Ontario, and Archdeacon Lofthouse, formerly of Fort Churchill, Hudson Bay. Six others—canoemen, dog-drivers and a cook—completed the party.

As the next stage of the journey was to cross the ice-bound lake to its eastern terminus, and as all supplies had to be transported, additional sleds were an extremely important matter. Dogs they had brought from Edmonton, but no extra sleds were available at Resolution, nor were there men available to build them. Tyrrell, however, with a resourcefulness for which he was noted, found the proper materials, and coupled with a seasoned knowledge of what would suit his purposes best, undertook to build three light, steel-shod sleds himself, making so good a job of it that after a stay of eleven days at the post all was in readiness to proceed.

The expedition took leave of Fort Resolution with all sleds filled to capacity with supplies and equipment. Lashed to the top of the loads were the canoes to be used for the balance of the journey. On May 9, after a trip marked by difficult travel during a dangerous time of the year in this region, the party arrived without serious mishap at a point known as Pike's Portage at the eastern extremity of the lake.

Pike's Portage, leading to the barrens and charted by the Englishman, Warburton Pike, is an alternative route to that of the wild and tortuous Lockhart River. It consists of a series of small lakes (one of which to-day bears the name of Burr in honour of Tyrrell's brother, Joseph Burr Tyrrell). The eastern termination is a deep bay at the southwestern end of Artillery Lake.

Here the dogs were sent back with extra helpers brought from Resolution, and the party, after crossing the lake by canoe, journeyed up the Casba River to Hanbury Portage. From thence they progressed through a series of large lakes to the source of the Hanbury River and so on down to its confluence with the Thelon River, covering a distance of two hundred and eighty miles, through a land of bare rocky hills and intervening low marshy areas and dotted with

lakes of a great variety of form and size. Over this height of land or "divide" country, twenty-seven more arduous portages had to be made.

The first week in July found Tyrrell and his party embarked in canoes on the Thelon, down which they voyaged to near its junction with the Dubawnt. At this point the party divided forces, Mr. Fairchild and Archdeacon Lofthouse going on to complete the survey of Aberdeen, Schultz and Baker Lakes, together with a resurvey of the whole of Chesterfield Inlet. From thence they were to return to Fort Reliance via the Hanbury or west branch of the Thelon. Tyrrell himself turned upriver to give further examination to the sources of the Thelon and the divide country.

With one canoe and two men he proceeded to a point about ninety miles above Eyeberry Lake. The date was then August 9, and due to the lateness of the season it was deemed unwise to carry out the original plan to attempt to come out by way of Lake Athabaska, a distance of about five hundred miles. In addition, the canoe was getting in pretty bad shape and entirely unsuitable for the long trip to Lake Athabaska.

Instead, Tyrrell sent his two men by canoe along the known route to a rendezvous at the southwestern end of Artillery Lake. He decided to explore a second route across the height of land, a direct distance of about eighty miles. This Tyrrell elected to walk by himself, and in so doing undertook a journey which for sheer hardship and courageous effort is almost unequalled in the history of northern travel.

Tyrrell carried a rifle and a pack of about fifty pounds weight, composed of his single blanket and canvas wrapper and a minimum of food stuffs, to be supplemented by what he could shoot along the way.

He was in excellent condition, completely sure of his own capabilities, and he anticipated little difficulty in reaching his objective. He had extraordinary physical strength, endurance and boundless energy. His report on this solitary walk is so matter of fact that a casual reader can scarcely appreciate the extent of the hardships he must have endured.

From the time he left the canoe, almost continuous bad weather beset him. The numberless streams and lakes along his route were swollen and impassable. He had to retrace his steps on many occasions. The cold rain came down in torrents, and there was no shelter. He was wet through almost continuously, and his legs suffered severely from the rough terrain he had to cross.

Two days after he left the canoe, he reached the shores of a very large and hitherto unknown lake. He could not see either the north or south end of it, nor

could he see its shore directly across. He knew he was a considerable distance from Artillery Lake. He also knew there was no use in thinking of turning back as his men had gone on by river to the rendezvous. To bypass this hazard he had to go many miles out of his way until he finally reached its southern tip.

His supplies were getting very thin and his shoes were completely worn out. From the sleeves of his still serviceable jacket he cut lengths and wrapped them around his feet. Incidentally, he travelled about one hundred miles across country with these wrappings after his shoes had worn out.

At one time rain, snow and sleet dogged him steadily for forty-eight hours. The only protection from the blast that he could find was the lee side of a rock, where he lay shivering in his wet blanket until the storm spent its fury.

Soon Tyrrell found his biscuit was all gone; while lack of sleep from exposure to the chilling temperatures had weakened him to a considerable extent.

Finally a fortunate break in the weather enabled him to build a small fire, upon which he cooked a piece of venison. Heartened considerably by the warm food within and welcome sunshine he continued on his way.

It took Tyrrell sixteen days to make a trip that he had expected to complete easily in ten. All of this journey was made in country devoid of trees or shelter. No fuel was to be had other than grasses. He found no berries for food and game was unseen with the exception of a solitary deer which he shot. Instead of eighty miles, this indefatigable traveller covered one hundred and sixty miles on foot. Yet he preceded his canoe party to the rendezvous by two full days, where after a short rest he undertook and completed the unfinished survey of the north end of Artillery Lake.

Of the latter part of the 1900 trip a good Tyrrell story is related by Col. Charles R. McCullough, an intimate friend of the late explorer. Later Dr. Charles Camsell, recently retired as Deputy Minister of Mines and Resources, Ottawa, confirmed it in the course of a visit at his office.

Towards the close of the journey, whilst Tyrrell was waiting at Fort Chipewyan, en route to Edmonton, he was joined at that spot by Dr. MacIntosh Bell and Dr. Camsell, who had been sent out by Ottawa to make a geological survey of Great Bear Lake.

Due to the lateness of the season, it was necessary to come out by dog team, and several parties, all journeying south, set out together. Edmonton was their destination, but Lac la Biche was important along the route, because at that spot there were horse teams which could be used to take parties and their equipment further on their way southward. Knowledge that there might be insufficient numbers of these teams to help convey a large number of persons further south led to keen rivalry to be the first to reach Lac la Biche. Dr. Camsell tells the story as follows:

"The two parties were delayed at Fort Chipewyan for some weeks awaiting the freeze-up, and it was about the middle of November before the expedition left for the six hundred mile trip to Edmonton. Besides the two parties headed by Tyrrell and Bell, there were half a dozen dog teams belonging to the Hudson's Bay Company. The Tyrrell party consisted of five teams and the Bell party consisted of two. Both Tyrrell and Bell had carriages, while the rest of the toboggans were pretty heavily laden, mainly with provisions and material collected on the explorations. I drove Bell's provision toboggan.



J. W. Tyrrell as he set out alone on his 160-mile tramp through unknown country.

"The night before the party reached Lac la Biche, Bell and I camped a few hundred yards beyond Tyrrell and the Hudson's Bay parties. We got away very early the next morning, possibly about four o'clock, and as soon as Johnny Kipling, Tyrrell's Cree driver,* heard that we were under way, he aroused his chief and they hurriedly packed up and followed. Bell and I stopped for breakfast about daylight, and while we were eating we were passed by Tyrrell and Kipling.

From that point Tyrrell took the lead until he was forced to stop for an early lunch. While he was at lunch we passed him and held the lead until we reached Heart Lake. On arriving at Heart Lake, the trail turned into the trading post situated in a deep bay to the north. We followed the trail in order to stop at the post for a little refreshment and rest.

"In the meantime Tyrrell, arriving at the lake, saw us turn off to the north. He remained in the woods until he saw that Bell had unhitched his dogs and was

*Now living at St. Peter's, Manitoba.



Tyrrell's dog-team and carriole used between Resolution and Lac la Biche, with Johnny Kipling driving. Sketched from a photograph.

inside the trading post. He then struck straight across the lake. While he was crossing it, however, he was spotted by Bell just before he entered the woods at the further end of the lake. Bell then hurriedly hitched up his dogs and headed after Tyrrell, but was unable to catch him. Tyrrell arrived at Lac la Biche a few minutes before midnight, while Bell arrived some time after. It was one of the longest day's runs with a dog team that I ever had any knowledge of.

"The dog race ended at Lac la Biche. We waited there a day until all the rest of the party had come in, and they were all day straggling in one by one. The next day we started for Edmonton with horses and sleighs, and the whole party arrived at that point together."

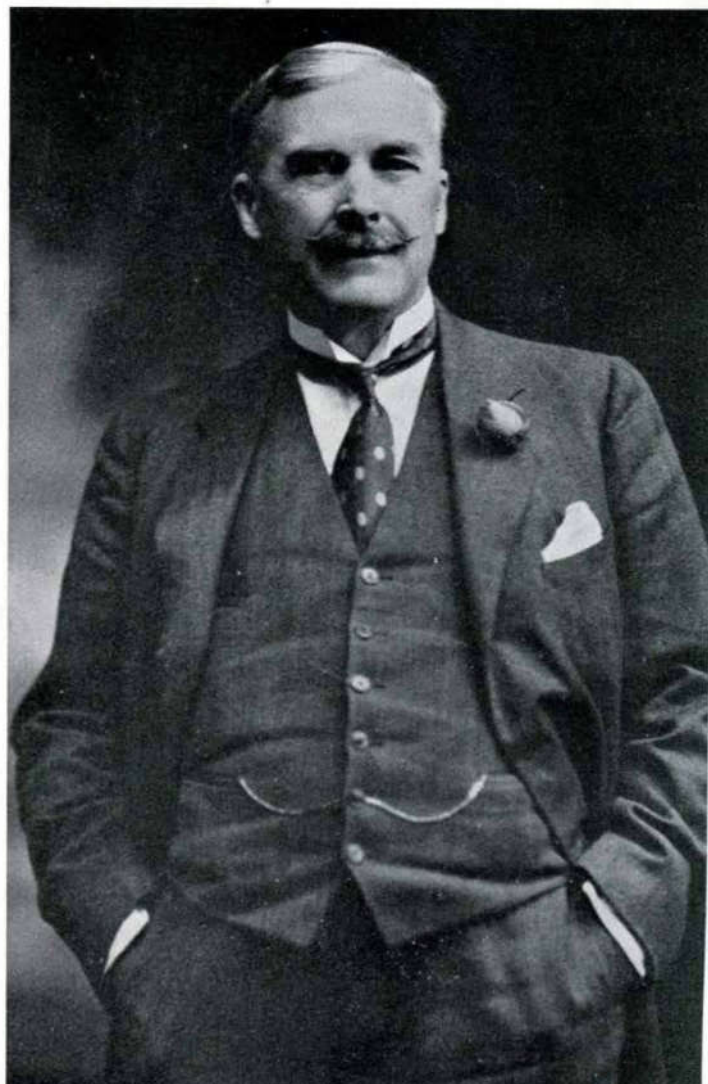
Some time later, Dr. Bell, speaking at the inauguration of the Canadian Geographical Society in Ottawa, stated that Mr. Tyrrell only succeeded in beating him in the race because he (Tyrrell) got off his carriole, donned his snowshoes and made the greater part of the final forty miles of the journey on foot!

Although this story concerns only one of Tyrrell's expeditions, it is common knowledge that his restless energy led him to make many other surveys and explorations in northern Canada and the Klondyke, as well as pioneer prospecting and map making in the Red Lake mining district of Northwestern Ontario.

In later years he conducted a land survey office in Hamilton under the name of Abrey & Tyrrell, which quickly became the outstanding authority on this work in the district. Tyrrell ran successfully for alderman and finally for the board of control of his adopted city. Frequently he was called upon to lecture on the north and he wrote many pamphlets on the subject.

James W. Tyrrell died at the age of eighty-two on January 16, last year. Around him at the funeral were his brother, Dr. J. B. Tyrrell, of Toronto, companion of many northern miles, and men who had accompanied him in exploring, prospecting and land surveys of the past. They recalled his extraordinary fortitude and dogged determination. Their tributes were significant of the respect in which he was held by those who knew him and who number him amongst this country's truly great native sons, one whose fame will increase as the years go by.

James W. Tyrrell in later life.



MOOSE RAMPANT

by Percy E. Nobbs

DAVID Fournier knew moose almost as well as did his old father, Joseph, who knew so much that he actually made a fair moose-hunter out of me. And David, like many a good woodsman, delighted to play a teasing game with a moose, or any other animal, and then send it off to melt hurriedly into the landscape with a shouted, "*au revoir!*" For example, one clear October afternoon I was camped with him at a good sized lake, two miles below which we had a cache of grub by the river. After looking over our stores, I had sent him down the river in the canoe to replenish supplies, while I finished making camp and got the supper started. The air was clear and damp and windless, and presently I heard strange far-off sounds from where the lake ran out into the river through a pond bedecked in summertime with water lilies.

My field glasses soon showed what was up. A splendid moose was capering on his hind legs very "rampant," to use the heraldic expression, and David was backing away to a convenient tree, which he presently scrambled up, jabbing like mad at the moose with his paddle as he did so.

Well, it was rough country and, though only half a mile away, it would have taken over two hours to get to him round a deep bay. Besides I didn't want the moose; so I mended the fire and put on the pot and then had another look through the binoculars. David was now safely perched and the moose was standing by quietly. Then I saw David take another crack at the beast's nose. Whereupon there was a snort or two and more ramping, which at that distance looked as if the moose was trying to climb or cut down the tree. Again I tended the fire and the pot and was just thinking it might do David good to spend the night in the tree, when I took another squint at the proceedings down the lake. The moose was now standing head down, ruminating, and in a minute or two he turned slowly round and crossed the outlet, having apparently forgotten entirely why he had been there with a tree a yard in front of him.

Presently I noted a wisp of smoke and surmised, correctly, that the canoe was being mended. So I ate my supper while the sun set. In due time the ripples of the approaching canoe showed golden wavering streaks and next came the *tunk, tunk*, as the paddle turned on the gunwale and then the drip, drip, drip, from the blade and the scrape on the gravel of the very wet canoe the moose had walked on. Lastly, there was a warmed supper for David, and so to bed.

What had happened was this. On coming up the river, my guide had found a fine beast tearing up the water-lily roots. Each time the great head and horns went down he had pushed the canoe nearer, till at last, what little draft of wind there was being right, the head came up to get a resounding whack on the nose, with the above described results.

Now, if one takes the trouble to dissect the head of a moose, one will find that the brain enclosed in massive bone is very small indeed, and that the sensory nervous system to the nostrils and muffle, which are

of erectile tissue, is large out of all usual proportion with respect to the nerves leading to other organs of sense. A moose hears pretty well, but not as well as a deer; it sees very poorly or else fails to interpret the meaning of what it sees; but its interest in life and its defence is in an uncanny ability to smell and to interpret smells.

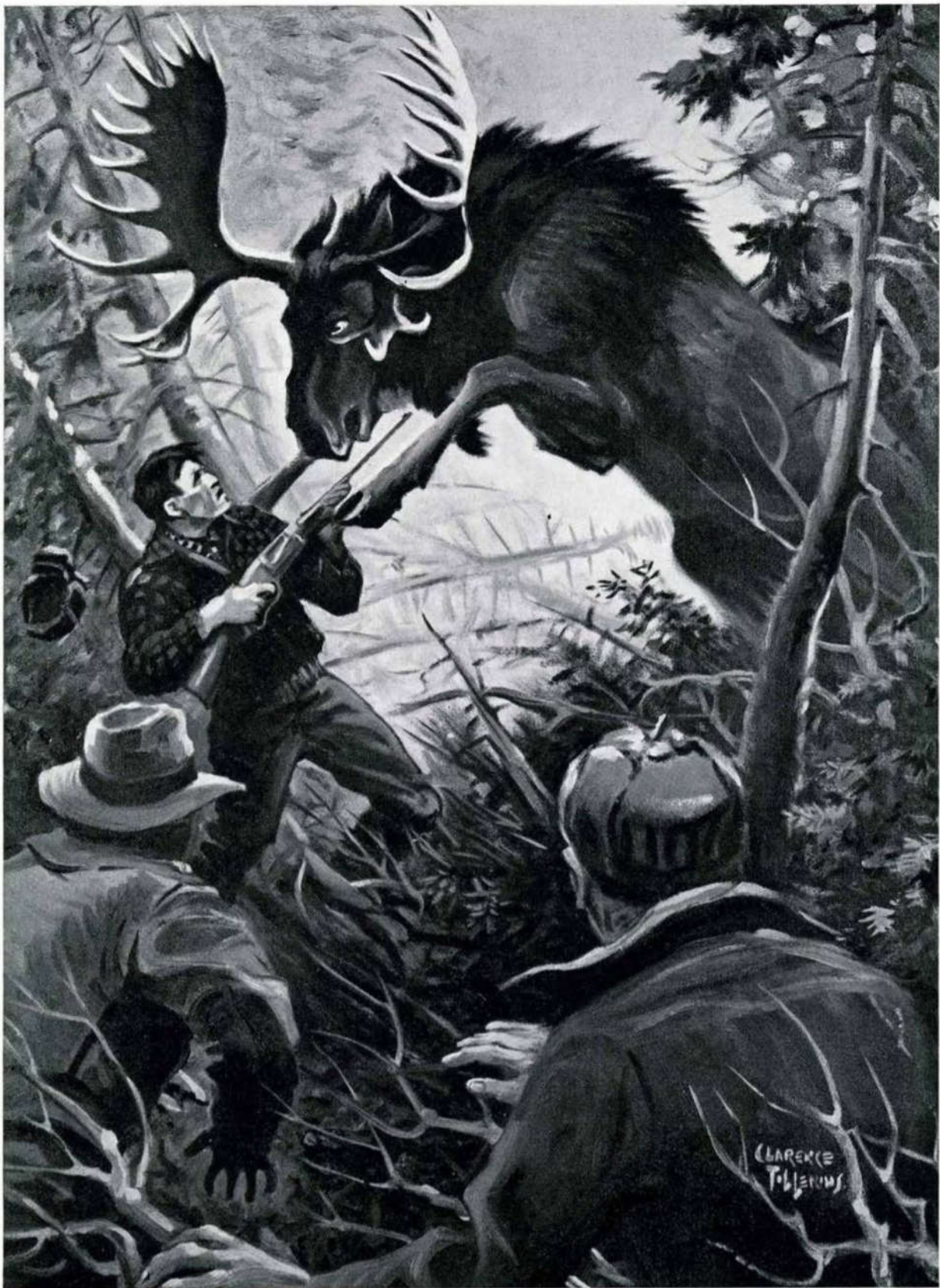
Incompetent hunters tell truly, alas, of moose ridden with six or eight holes from the expanding bullets of a .405 rifle (the late President Teddy Roosevelt's "medicine gun for lions") and still carrying on as if not much was the matter. But woe betide the clumsy duffer who sends a bullet through the tender muffle of a moose. In that case there may be a hunter less to recount his adventures; for when shot, or even struck about the nose, acute pain causes the moose to attack, if it can smell, hear or see its assailant.

The way a bull moose attacks a man is to rear up on his hind legs and strike vertically down with his sharp hoofs. A cow moose, on the other hand, is said—for I have not seen this—to defend her calf from wolves by kicking back with her sharp hoofs; and I have seen the dry and very broken remains of a couple of wolves that apparently came to bad ends this way.

But when a pair of bull-moose fight they use their horns, first to push in a sort of reversed tug of war and then to jab. The year before David Fournier met the big moose whose antlers adorn the billiard room of the University Club in Montreal, I saw a moose fight; and, if I had not, this story would not be written, for it was to the place where I happened to bring this fight about by my call that our steps were directed when the encounter I later describe took place.

It was a very cold evening late in the season when I took my friends T. and S. to a lake where I knew there was a good chance. They got well into some bushes while I, acting as guide, went gingerly out on the floating bog at the lake inlet to look, to listen, and to sniff. Then I called, giving a grunting challenge. I have never used cow-calls for two good reasons: it is in execrable bad taste, and it is rarely effective. Three bulls answered me and came crackling in my direction as I discreetly withdrew. One got my wind and bolted up the brook braying like a jackass, but the other two went straight for each other and locked horns. The fight went slowly at first with great roarings and trumpeting, and lots of hair was rooted out and some blood shed. We held our fire, of course, for this was better sport than any kill could be. Down the shore they fought, not thirty yards away, and we got into an old canoe to follow the battle.

That canoe leaked badly, so presently we were sitting with our pockets under water, and soon had to get out. The sun had long set by this time, and there was less noise and more thrusting and grunting and hard breathing, and presently the larger moose gave ground rapidly, disengaged, and the alders closed behind him. Whereupon the victor wearily worked his way to a rocky point and stood quite still overlooking the water.



"What happened took about two seconds to enact."

From a painting by Clarence Tillenius.

As we turned our eyes from him with thoughts of the end of the trail, we noted a V of ripple on the lake and then another, and yet another. Five full grown cow-moose and two well grown calves crossed the lake and came ashore close by. Then the victor led his harem back into the alders.

So there we were in the dark with four hours to wait for a young moon, and not a torch with which to show the trail, which was very rocky, nor a dry match with which to light a fire.

Now my friend G., for whom David Fournier was guiding, had done many interesting things, but had never shot a moose, and he had the itch to do so. Likewise our happy hunting ground was that year infested with wolves and we had ransacked many, many miles of likely country without coming across a sign of a moose. So I bethought me of the little lake twenty miles off where the fight took place the year before; and in due course David was leading the way up a very steep rocky trail that was in spring a watercourse. The lake with its swampy outlet was still a quarter of a mile off, but he thought it well to be sure that his birch-bark trumpet was clear and in order, so put it to his lips and gave the merest whisper of a call.

Immediately there was a snort, a savage grunt and a clatter of hoofs, and down that rocky watercourse there hurtled a moose that looked as big as an elephant in the half light; and there was no getting out of the way for anyone. Furthermore, G., though a good shot, was short-sighted and his glasses were hazy with breath in the cold air. What happened took about two seconds to enact.

David grabbed G.'s rifle (contrary to all his principles) and charged up the rocky trail straight at the moose, hurdling a small fallen tree as he met it. The moose reared up with front hoofs pointed down right over David's head. But the blow never fell, for David had driven the rifle right into the beast's breast bone, and fired as he struck. The moose fell to the right, shot through the spine from below as David stumbled to the left.

Now David Fournier was as fine a gentleman as ever I've met, and directly descended from that Fournier who fought in the First Crusade: an aristocrat, small made like his ancestors who wore such small armour and did such mighty deeds. He was apologetic about grabbing G.'s rifle. "It was the only thing to do," said he as he sharpened his knife and considered whether the job could be done as the moose lay, or whether the carcass would have to be turned over. Well, the moose lay quite conveniently for a clean job and there was no need of the block and tackle that I insist on as part of the moose hunter's outfit to avoid spoiling good meat by bad butchering.

Now it will be noted that this was a very exceptional case, for the moose had not been wounded in the nose, but came full of fight at the challenging call and, when charged by David, could not stop on the steep path and in surprise made ready for a combat of quite a different kind to that he expected to engage in. The case is unique I think in this respect, but standard practice as to the mode of fighting. Moose, unless hurt on the nose, do not as a rule go out of their way to pick quarrels with men, or beasts other than their own kind.

A magnificent bull moose brought down near Prince George, B.C., by George L. Tapping. Note the length of the bell, and the crownlike appearance of the antlers. *A. H. Townsend.*



THE ARCTIC INSTITUTE



by A. L. Washburn

Botanical studies are needed to determine the best grazing grounds for reindeer. These were photographed by the author on Richards Island, near the mouth of the Mackenzie.

THERE are many sound reasons, some purely scientific, others economic, for investigating the North. Perhaps the greatest economic incentives are mineral deposits and furs. Eldorado Mine on Great Bear Lake is one of the few places in the world where uranium and radium are found, Yellowknife on Great Slave Lake is becoming a prosperous gold mining town, and in Alaska the U.S. Navy is drilling for oil on the very shores of the Arctic Sea. The economic return of the fur trade does not lag behind that of mineral production in the Northwest Territories.

Thousands of men, from both Canada and the United States, have seen wartime service in Alaska, northern Canada, Labrador and Greenland, and their experience has served to convince many that their future lies in the North. They like the frontier life and the possibilities the region holds.

Realizing the growing interest in the Arctic and Subarctic and the need for more detailed knowledge, an international group of prominent educators, scientists, and others with Arctic interests gathered in New York early in 1944 to discuss the advisability of organizing an institute to further scientific work in the North. Similar organizations in England, Scandinavia and the Soviet Union had already demonstrated their value and there was general agreement that the time had arrived to establish an Arctic Institute on this continent. As a result The Arctic Institute of North America was launched with the aid of grants from the National Research Councils of Canada and the United States and with donations from private sources. Dr. Charles Camsell, then Deputy Minister of Mines and Resources, Ottawa, was elected the first chairman, and Dr. L. M. Gould, the present chairman, was appointed acting director.* Under their direction, the Institute was incorporated as a non-profit-making organization, in the United States under the laws of the State of New York and in Canada by Act of Parliament.

Montreal, for many reasons, appeared to be the best location, and in October, 1945, headquarters were established here in quarters provided by McGill University. At the headquarters there is a library with facilities for reference work, and there are also numerous

maps, charts and photographs, and an exhibit of scientific instruments, native clothing, implements and handicrafts. Here the staff is working to fulfil the objects of the institute. Briefly these objects are: to encourage the objective study of Arctic conditions and problems; to collect records relating to the Arctic regions, and to make them available for pure and applied scientific use; and finally to maintain close contact with other Arctic institutes and organizations engaged in similar or related fields of study.

Interest in the institute has continued to grow. Additional grants have permitted the recent award of three Fellowships of \$1,500 each to Dr. Margaret Lantis of Washington, D.C. for ethnologic work in Alaska, to Harold C. Hanson of Urbana, Illinois for wildlife work in the James Bay area of northern Ontario, and to Dr. Nicholas Polunin of McGill for botanical work on Ungava Peninsula. Two other Fellowships of up to \$2,000 each are being offered for work in 1947.

*The Board of Governors and present officers of the institute are as follows: Henri Bélanger, Surveyor, Quebec City; Dr. Charles Camsell (past chairman), Commissioner of the Northwest Territories, Ottawa; P. A. Chester, General Manager, Hudson's Bay Company, Winnipeg; Dr. H. B. Collins, Jr., Bureau of American Ethnology, Washington; Dr. R. F. Flint, Professor of Geology, Yale University; Dr. L. M. Gould (chairman), President, Carleton College, Northfield, Minn.; R. Gushue, Chairman, Committee on Fishery Products, Combined Food Board, Washington, and St. John's, Newfoundland; Dr. E. M. Hopkins, President Emeritus, Dartmouth College, Hanover, N.H.; Dr. Diamond Jenness, Chief, Inter-Service Topographical Section, Department of National Defence (Air Service), Ottawa; Dr. H. L. Keenleyside, Canadian Ambassador to Mexico; Dr. C. J. Mackenzie, President, National Research Council, Ottawa; Dr. J. J. O'Neill (treasurer), Dean of the Faculty of Engineering, McGill University; G. R. Parkin (secretary), Assistant Treasurer, Sun Life Assurance Company of Canada, Montreal; Dr. Morten Persild, Director Emeritus, Danish Arctic Research Station, Disko Island, Greenland; Walter S. Rogers, Director, Institute of Current World Affairs, New York; Dr. Philip S. Smith, until recently chief Alaskan geologist, U.S. Geological Survey, Washington; Dr. Vilhjalmur Stefansson, New York; Dr. A. L. Washburn, Director, The Arctic Institute of North America, Montreal; Dr. J. T. Wilson (vice-chairman), Professor of Geophysics, University of Toronto.



Baker Lake, where the Canadian Government is planning to erect a weather station and research laboratory.
T. H. Manning.

In order to outline some of the specific problems needing solution, the institute has published *A Program of Desirable Scientific Investigations in Arctic North America*. For the investigation of many of these problems, adequate maps are a primary requirement. Much of Alaska and Northern Canada has never been mapped in detail, and for some parts of the Arctic, the only maps we have are based on the reports of early exploring parties.

Since much of our weather originates in the far North, the establishment of additional Arctic weather stations would materially aid forecasting and meteorological investigations. The need is a growing one, for the shorter distances involved in Arctic air routes are becoming of increasing significance as aviation develops. The Soviet Union has long had a network of stations across its Arctic, which are not only weather stations, but also general research laboratories for many types of scientific work. Similar stations, if established in the North American Arctic, would greatly facilitate the work of scientists and help them find the answers to many important problems. In fact a start is already being contemplated, for the Canadian Department of Mines and Resources is hoping to erect such a station this year at Baker Lake, four hundred miles north of Churchill.

The detailed study of Arctic waters is of considerable practical importance. Ocean currents, for instance, have a direct bearing on climate and fauna. As the result of an increased influence of the Gulf Stream in West Greenland waters, commercial cod fishing has been possible there since 1917. The voyages of the R.C.M.P. schooner *St. Roch* have recently emphasized the existence of a northwest passage through Canada's Arctic islands but we still do not know whether the passage is feasible for large ships, as is, in some years, the Northeast Passage on the opposite side of the Arctic Sea. Detailed oceanographic studies of currents and ice conditions will help to solve the question.

Geologic investigations are important because it is not unreasonable to suppose that the North may hide

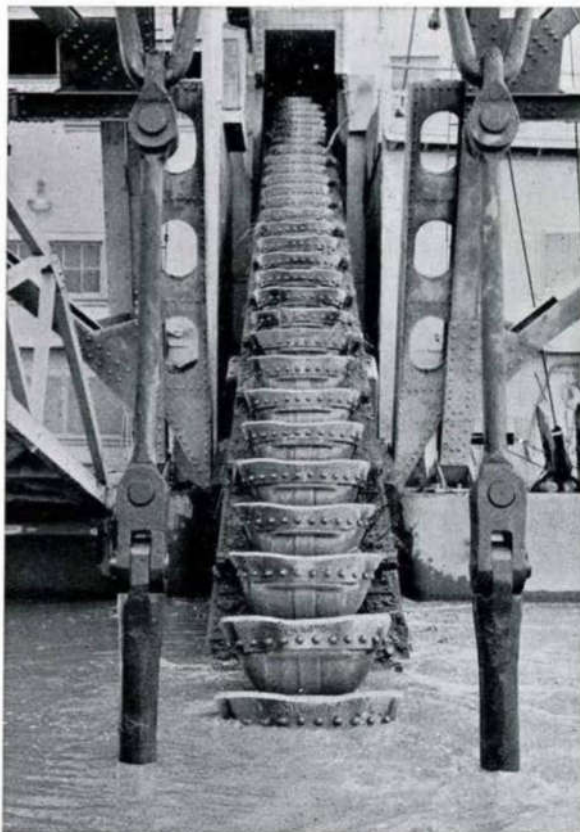
valuable mineral deposits, such as those known from more southerly regions. The discovery and successful exploitation of northern mines like Eldorado at Great Bear Lake, famous as one of the few sources of uranium, and the gold mines of Yellowknife, indicate the possibility. Permafrost, or permanently frozen ground, is a pressing geologic problem, for most of the North is characterized by it. The significance of permafrost in construction work cannot be overemphasized, as army engineers discovered during the building of the Alaska Highway and Canol Pipeline and Road. Unfortunately much remains to be learned about the detailed distribution, behaviour, and control of permafrost.

Even the exact location and extent of the North Magnetic Pole appears open to some question. The Royal Air Force Lancaster *Aries* recently made two flights in the neighbourhood of the Magnetic Pole and reported that it did not appear to occupy the area on Boothia Peninsula traditionally assigned to it. The practical importance to navigation of accurately locating the Pole and establishing correctly the lines of equal magnetic declination is clear.

Then there are special physical problems demanding careful study, such as ionospheric and cosmic ray research. Ionospheric studies are of extreme importance in radio transmission and require continuous observations at fixed points in the Arctic. Cosmic rays are sources of energy that should be measured at all levels and observations in the North are essential to confirm conclusions as to their nature and properties in relation to the earth's magnetic field.

Biological problems are manifold. Fur cycles, for example, present a very practical unsolved problem.

Much exploratory work for mineral deposits remains to be done in the North. This is a gold dredge at Fairbanks.





The chief sources of food and clothing for the Eskimos are caribou and seals, and an abundant supply of them must be ensured.



Photos by J. H. Webster and L. A. Learmonth.

The far northern Hudson's Bay Company posts are dependent to a large extent on white foxes. In some years these white foxes are abundant, in other years very scarce; we do not exactly know why. There are many other zoological problems, such as studies concerned with commercial fisheries, which are a major activity in the waters of southeastern Alaska, and western Greenland. Just within the past year, detailed studies have resulted in the introduction of commercial fishing at Great Slave Lake. The principal sources of food and clothing for Eskimos are caribou and seals, and an extensive knowledge of distributional factors is needed to safeguard an abundant supply of these mammals. This problem of conserving original faunas is an unavoidable one, created by any northward movement of man. In the Arctic original faunas are very delicately adjusted to their environment. Northern development of any kind is therefore likely to have unfavourable consequences, which can only be balanced by conservation measures requiring an accurate knowledge that must keep pace with the development of the Arctic.

Botanical studies are needed to determine the best grazing grounds for reindeer. Such studies made possible the introduction of reindeer from Alaska to the Mackenzie Delta, where they are being herded for the benefit of natives. The further extension of this work requires a better knowledge of potential grazing grounds than we now possess.

Although considerable agricultural research has been done in Subarctic North America, we still have much to learn. Maps of soil types, studies of organisms inhabiting permanently frozen soils, and extension of experimental farms are all required.

Physiology of man in the North is a line of detailed research that is essential to a proper knowledge of the factors controlling man's adaptation to a cold environment. Yet little work has been done on this subject in Arctic North America. Examples of desirable investigations are physiological studies of northern natives and physiological tests such as those carried out in connection with "Exercise Musk-Ox."

It is perhaps not commonly realized that northern natives are a great potential asset to a country. Eth-

nologists tell us that Eskimos, by combining a white man's technical knowledge with their native ability, are capable of becoming excellent weather observers, radio operators, and other specialists. However, enlarged programs of education and health will be required to attain this goal.

These are just a few of the numerous problems which should be solved in the near future. There are almost countless others to be answered. Many, to the layman, would appear to be such purely scientific questions as to have no immediate economic value. But what would any layman have seen in the laboratories of the scientists working on nuclear physics, or for that matter have guessed what world-shaking events could result from the dark rock mined at Great Bear Lake?

By encouraging and assisting scientists to study Arctic problems, and acting as a co-ordinating centre for such work in North America, the Arctic Institute hopes to further a clear picture of the Arctic, based on a firm foundation of scientific fact.

Oceanographic studies of currents and ice conditions will help to solve problems of Arctic navigation. Here the *Fort Ross* is held fast in the ice. L. A. Learmonth.





Left: The photographer, W. Blowey, omitted to state what this mink at Mafeking, Man., is mad about. Above: A wounded pelican at Cranberry Portage. T. Tadda.



A copper lined powder box, 16 ins. square, recently found at the H B post at Trout Lake, Ont. It is marked "Royal Engineers Department. Fort Garry," and is a relic of the days of 1846. It is now in the Company museum.



Indian boy at Kaniapiskau in a rabbit skin parki. G. Speers.

Here and There

Below: Firing off an old whaler's cannon at Pangnirtung to celebrate VE Day, 1945. G. Anderson.

Left: This little grey home in the west is an overnight cabin belonging to an H B clerk at Hudson Hope, B.C. Bradford Angier.





Markers

Two memorials have recently been erected on the sites of old Hudson's Bay posts. The first stands on the right bank of the South Saskatchewan River, not far from Duck Lake, and commemorates the destruction of South Branch House, built in 1785 by William Tomison. The inscription on the English plaque (there is also a French one) reads as follows:

"On June 24, 1794, M. Annal, H. Brough, and Wm. Fea, the Hudson's Bay Co. servants, and all the older Indian women and children, were killed here by a band of Gros Ventre Indians who burned the fort and carried off the young women. One man hid in an abandoned cellar and escaped."

The reason for the attack was that the Crees had been buying guns at the Hudson's Bay and North West Company posts, with which they shot down their poorly armed enemies, the Gros Ventres or Fall Indians. The Gros Ventres therefore decided to cut off the supply of firearms at its source, and in 1793 they pillaged the forts at Pine Island and Manchester House. These successes encouraged them to attack the South Branch House. After sacking the English fort, they crossed the river and advanced on the North West Company's post. But the Nor'westers were ready for them, and when one of their chiefs had been killed, the attackers abandoned the attempt.

The memorial was erected by the University of Saskatchewan under the direction of the late Dr. A. S. Morton, head of the Department of History, who describes the incident on pages 456-7 of his *History of the Canadian West*. The site was donated by Adrien Legare.

Another monument was unveiled last month at Eagle Lake, Ontario, on the C.P.R. main line, about twenty miles west of Dryden. The inscription reads:

"To commemorate the site of the historic Eagle Lake Post of the Hudson's Bay Company, this native granite stone was erected by the Township of Machin and well and truly laid by the Honourable George A. Drew, Premier of Ontario, on 14th August, 1946."

Eagle's Nest House, as the post was called, flourished from about 1860 to 1880, in country that is now famed for its tourist attractions. Eagle Lake itself is a large sheet of water, with a picturesque shoreline full of bays and inlets. The unveiling was done during a large picnic held in honour of the premier by the Progressive-Conservative Association of Kenora district.

Monty's Visit

Field Marshal Viscount Montgomery's visit to Winnipeg this month might be said to have an historical precedent. The great soldier's old regiment is the Royal Warwickshire—the same which garrisoned Upper and Lower Fort Garry just a hundred years ago (See *The Beaver*, December 1945).

Lt.-Col. B. L. Montgomery commanded the 1st Battalion of the Royal Warwicks from 1931-4, when he was promoted to colonel. His predecessor by some eighty-five years was Lt.-Col. John Mollitt Crofton, who was sent out to Fort Garry in 1846 in command of three companies of the Royal Warwicks—also known as the Sixth Royal Regiment of Foot. Major Crofton returned to England the next year to be given his promotion, and in 1860 he was appointed honorary colonel of the regiment. He attained the rank of general in 1877.

The people who dwelt at the forks of the Red and Assiniboine warmly welcomed Major Crofton when he arrived in their midst, in September 1846. They will give his successor an even more enthusiastic welcome, when he visits them in September 1946.



Radar and Ice

Radar is a remarkable invention, but it doesn't make a very good ice-breaker. We hear quite a bit these days about how it will make navigation of icy Hudson Bay a perfect cinch: but the ice will always be there, radar or no radar, and it will still stop ships from navigating. Last month the radar-equipped *Nascopie* took seven days to make the run from Cape Smith to Port Harrison—a run that normally takes thirty hours—because of continual ice and fog. And crossing the Bay from Port Harrison to Churchill, she had to butt her way through sixty miles of ice. An iceberg is one thing: field ice is very definitely another. A ship can avoid a berg by going slightly out of her course. But field ice stretches for miles and miles, and there is no telling—even by radar—how far she will have to go in order to avoid it. Perhaps, some day, atomic energy will clear a way. In the meantime, ice in Hudson Bay will remain a hazard to navigation.

Rindisbacher

Readers of the symposium on Peter Rindisbacher in the December 1945 *Beaver* will be interested to learn that two more water colours have recently come to light, apparently done by the young Swiss artist. W. A. Bulger, grandson of Capt. Andrew Bulger, governor of the Red River Colony in 1822-3, has sent them in to *The Beaver* for inspection. The smaller one is entitled "Captain Bulger, Governor of Ossiniboia, and the Chiefs and Warriors of the Chippewa tribe, of Red Lake, in Council, in the Colony House, in Fort Douglas, May 22, 1823," and agrees in almost every respect with the large oil painting of the same scene, reproduced on page 36 of the December issue.

The larger one appears to be the finished painting for which the water colour in the McCord Museum was the rough sketch. This sketch is shown on page 34 of the December issue. The description pasted on the back of this picture also agrees with that on the back of the McCord Museum copy—Capt. Bulger saying farewell to the Indians at Fort McKay (Prairie du Chie) in 1815.

Both the new "finds" are painted with meticulous care. The pen lines are of the finest, and it is even possible to count the beads on the Indians' costumes. The technique definitely resembles that of Rindisbacher water colours in the Public Archives at Ottawa, but unfortunately neither painting is signed.

As they were handed down in the Bulger family, however, it seems probable that they were painted by the Swiss boy as a commission from Governor Bulger. A letter from George Barnston to James Hargrave in 1824, quoted on page 32 of the December *Beaver*, shows that Barnston commissioned Rindisbacher to do him a copy of "Captain Bulger's Palaver," and it seems likely that the smaller of the two pictures described above was the scene to which he referred.



Contributors

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tine, has been a keen outdoorsman for many years. He designed the cover for the 275th anniversary number of *The Beaver*. . . . GRACE LEE NUTE, Ph.D., of St. Paul, Minnesota, is professor of history at Hamline University. . . . T. A. RICKARD, D.Sc., A.R.S.M., of Victoria, B.C., is an authority on the history of mining. Among his published books are *Through the Yukon and Alaska* (1909), *Man and Metals* (1932), *The Romance of Mining* (1944), and *A History of American Mining*, which Stalin read when he became interested in the discovery of gold in Siberia. . . . JOHN H. ROMIG is assistant superintendent of the Canada Life Assurance Company, Toronto. . . . BOB STEWART served with Revillon Frères Trading Co. in the Eastern Arctic for several years. His fine studies of Eskimos from the region north of Southampton Island were made at Repulse Bay. In the recent war he joined the R.C.A.F. He died in hospital about a year ago. . . . T. TADDA is a district lineman on the Canadian National Telegraphs operating between Sherridon, Flin Flon and The Pas. His remarkable aurora pictures were taken near his home at Cranberry Portage. . . . A. L. WASHBURN, Ph.D., is director of the Arctic Institute of North America. His Arctic and geologic studies have taken him to Alaska, the Mackenzie Delta, the Western and Eastern Arctic, Greenland, and Spitzbergen.



HBC Museum

Visitors to the Company museum in the Winnipeg retail store this summer noticed a decided improvement after alterations had been carried out in June. Brighter lighting was installed, and a new and attractive colour scheme worked out by the store's interior decorating department. The plan of the whole museum was changed, and several cases of new material placed on view.

The new exhibit was opened to the public at the beginning of July, and a record registered attendance of 7,180 visitors (a fifth of them from the States) was chalked up for that month. This is 1300 more registrations than in any previous month since the museum was opened twenty-four years ago.

The new arrangement, instead of being divided territorially, is grouped under the following headings: An outline of *Western History* is presented to the visitor along the whole length of the south wall; *Indians of Canada* exhibits, distributed in geographical succession, cover the entire east wall; then follows a large *Transportation* section, succeeded by *Life in the Forts*, and by *Eskimos* including Arctic exploration and navigation.

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Men of the Hudson's Bay

A CHARTER so framed, conferring on the Company directors such extraordinary powers as exclusive trade, the making and enforcing of laws, the building of forts and even the organization of military force—the latter the most astonishing of all—might have easily become a despotic and injuriously tyrannical concern; but, in spite of its dangerous character, it became a sort of paternal and benevolent system of government.

... "This desirable condition of affairs existed, not because people liked a monopolistic organization, but by reason of the high character of the Company's employees in the North-West. In the hands of men of another type the administration of the Company might have been marred by tyranny and disfigured by spoliation. But the men of the Company were so uniformly honourable, intelligent, prudent and courteous that they controlled with the tacit consent of the governed.

... "The Union Jack, with the Company's ensign, on fort, canoe, sled or cart became a synonym for fair play. From my childhood I have known these men, factors, traders, explorers and the rest. They were men who read widely in their long winter nights, who made earnest investigation into the resources of the country, who sent specimens from the animal, vegetable and mineral world to enrich scientific institutions and to widen the scope of information for others; and my knowledge of them confirms me in the view that the deciding element in society's welfare is the individual unit."

From "*The Romance of Western Canada*,"
by Rev. R. G. MacBeth, D.D.
(William Briggs, Toronto, 1918)



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